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Recent Criticisms on the Olympian Discoveries.

IT is not surprising that in the collection of essays forming the birthday volume * offered to Prof. Curtius on his seventieth birthday there should be found no less than five, — and these, perhaps, the most important and interesting,—which relate to the Olympian excavations. Other matters are not neglected. We have an article on the topography of the bay of Salamis, on the history of Attic finance, on the recently excavated Temple of Vesta, on Etruscan ash chests, and many more which we cannot even enumerate. The volume was, indeed, intended to be as widely representative as possible of all the branches of classical learning,—a tribute and testimony to the wide sympathies of the veteran scholar and archæologist. But it was impossible to forget that to all archæological Europe the name of Curtius suggests Olympia, that these Olympian excavations had been to Prof. Curtius the inspiration of his early youth, the hope deferred of his middle life, and the crown and glory of his old age. He was only twenty-three when he first went to Athens, when he travelled through the Peloponnese in company with Ottfried Müller, the father of modern scientific archæology; from the time when he first trod the plain of Olympia in the hope,—nay almost the determination,—to unearth her treasures. But the waiting was long and weary. In 1844 he had the good fortune to be appointed tutor to the Crown Prince, a connexion invaluable for the fortunes of archæology. In 1852 he made his memorable oration in the Berlin "Sing-Akademie," and pleaded with passionate fervour the cause of Olympia. His enthusiasm was contagious, the Emperor and the Crown Prince caught fire, and for a while it seemed that his hope was near fulfilment. But, alas! the war intervened, and the prospect seemed further than ever. Archæologists, whatever their political convictions, have to be thankful for the issue of that war. Once peace established, the German Government, enriched and elate, lost no more time in undertaking a work that was sure to redound to the national glory. In 1874 Professor Curtius went as delegate to Athens. A convention was arranged, and at last, in 1875, on his birthday, September 2nd, he left Berlin for Olympia as director of the excavations. This is now just nine years ago; since then Prussia has enriched her national museum by the great find of the Pergamene marbles; and by the sensational splendour of these the far more valuable discoveries at Olympia are cast, for the popular mind, just a little in the shade. But the work of reconstructing and elucidating the Olympian remains goes steadily on, and some valuable results of this steady continuous labour are embodied in the five papers which fitly form part of the memorial volume before us. Interest in such elucidations has never failed among professional archæologists, but now that casts of the principal sculptures are to be seen at the South Kensington Museum this professional interest is sure to develope into a wider popularity.

As a specimen of new opinion ingeniously supported, we may select the paper by Dr. Gurlitt, on "Pæonios and the East Pediment of the Zeus Temple," as a welcome contribution to the literature of a most puzzling question.

The puzzle is this. Every one knew before a sod was upturned at Olympia that we might expect to find there the work of a certain artist, Pæonios of Mende. This Pæonios, literary tradition said, executed the pediment which contained sculptures representing the contest of Pelops and Oinomaos. Further, we knew that Pæonios was, roughly speaking, a contemporary of Pheidias, and as he was intrusted with the execution of work so conspicuous and all-important we naturally concluded that he was a very illustrious contemporary. Bit by bit, the sculptures by the hand of Pæonios were unearthed, and in eager expectation the archæologists of Europe rushed to see them. Then came, at first bitter disappointment, later complete bewilderment. Instead of sculptures of ideal beauty, great in conception, noble in execution, we have—well, what every one may now see for himself in the South Kensington Museum,—sculptures profoundly interesting, but to the untrained eye scarcely beautiful at all. Lamentation was followed by criticism and by attempted explanation. The best judges agreed happily on one point; the sculptures of both pediments and of the surviving metopes left on every highly-trained eye one impression,—that of confusion, bewilderment; of a style, that is, perhaps, best characterised as style-less; there was nothing about the sculptures of the high commanding *manner* of a great master. There was a good deal of liveliness, abundant realism, a certain aptitude for filling space, but nothing that amounted to style. Ingenious conjectures were hazarded to account for work so unsatisfactory,—so, as it seemed, inadequate,—coming, as we were bound to suppose it did, from the hands of masters like Pæonios and (for the west pediment) Alkamenes. One critic suggested that the work had been designed indeed by the great men, but carried out inefficiently by local workmen; another has invented for us a whole school of "Northern Greece" artists dominated by pictorial influence. Dr. Gurlitt rightly points out that the unsatisfactory character of the Olympian sculptures is due not merely to defective execution,—that rather the designs sin through want of largeness and fineness of conception,—that there are certain inherent defects in the treatment of the human body and in the schemes of drapery, that undoubtedly point to a certain poverty in the original model. With Professor Brunn's theory of the Northern Greece school and its pictorial tendencies Dr. Gurlitt has no quarrel; in fact, his own view is, in some respects, a further development of this very theory. He confines his discussion to the question of the style of Pæonios and his relation to the east pediment. Now about the style of Pæonios the excavations have added a very important piece of circumstantial evidence, the existence of which was unknown from literary testimony,—we mean the famous statue of Nike with the inscribed basis. This Nike has served to complicate the Pæonios question. Its style, superficially considered, is markedly superior to that of the east pediment; is it possible that the Nike and the pediment can have sprung from one and the same brain? The inscription compels us to acknowledge the Nike as the work of Pæonios; must we reject the pediment? Dr. Gurlitt thinks not; and first he turns to the inscription on the basis. This tells us that "the Messenians and Naupaktians dedicated the statue to the Olympian Zeus as a tenth of the spoil from their enemies, that Pæonios of Mende made it, the same who conquered in making the akroteria on the temple (*τὰκρωτήρια ἐπὶ τοὺ ναον*)." It has been thought by many that the "akroteria on the temple" might mean the pediment sculptures. This idea is now given up, and the akroteria are understood much more naturally to mean not the space contained within the pediment triangle, but the angles of that pediment, and hence the ornaments which adorned those angles. Pæonios then, according to the inscription, made the ornaments which adorned the pediment angles, the apex, and the two angles at the base. Why, we naturally ask, does the inscription call attention to this fact? And why, if it must mention other works of Pæonios and those connected with the temple of Zeus, does it make no mention of the fact that the pediment sculptures in the east end of the temple,—sculptures at least as important as the akroteria,—were by this same master Pæonios? The reason is obvious enough if we

* Historische und Philologische Aufsätze Ernst Curtius zu seinem siebenstigsten Gebuststage genidmet. Berlin: Asher & Co. 1884.

consider the nature of these akroteria; the centre one will suffice. On the apex of the Zeus temple floated a bronze-gilt Nike. The conclusion seems irresistible that the Nike, with the basis,—the sculptural Nike made for the Naupaktians,—was a replica, a second rendering of the original Nike made by Pæonios to decorate the temple. The reason of the mention of the akroteria is obvious. Pæonios did not wish to be regarded as the copyist of another's work when he was, in fact, merely a translator of his own.

Granting this (which few will be prepared to deny), Dr. Gurlitt goes on to say, here we have a remarkable juxtaposition; we possess two out of the three recorded works of the master Pæonios, and one of them is a translation into purely plastic form of what was originally a decorative design. Surely we have enough actual monumental evidence before us by which to judge of the sculptor's style, without troubling ourselves unduly with questions as to whether he worked under the influence of Pheidias or not. Further, have we not in this translation of the decorative into the purely plastic Nike a significant clue to the chief characteristic of Pæonios? This characteristic Dr. Gurlitt believes to be externalism; purely decorative, as opposed to imaginative excellence. No one denies the Nike is pictorial in conception. The conception of the floating goddess in swift motion is about as *un*sculptural as any conception could be. We have Nikes enough in the Athenian balustrade, but not one is thus daringly suspended, dependent for her support on that very atmosphere which is the essential of pictorial design, and which is for sculpture non-existent. But we might say this Nike is pictorial because she is a mere replica of the akroterian Nike, which necessarily, as a mere decorative adjunct, has a certain pictorial externalism. Dr. Gurlitt concedes this, but he goes on to point out how this decorative externalism is the key-note, not only of the Nike, but of the other work of Pæonios, the east pediment of the Zeus Temple. It is this decorative externalism which distinguishes it alike from the ruder Ægina pediments which preceded as from the finished excellence of the Parthenon. To Pheidias only was it given to combine a perfect decorative fitness with an absolutely plastic idealism. Pæonios was but a bold successful craftsman, probably self-taught, belonging to no particular school, who had seen great works and succeeded in catching something of the outward semblance of things, but who never penetrated beyond appearances, who never mastered that inwardness, that monumental security which was the characteristic of both Attic and Arqui schools, otherwise so widely apart.

Dr. Gurlitt supports this interesting, and, we think, substantially true theory by a careful analysis of the pediment figures one by one, and a comparison of them with the Nike; he also makes the suggestive remark that as the east pediment is to the Nike, so may the Parthenon pediments be to the unknown term,—the great masterpieces in the round by Pheidias. But upon this matter we cannot dwell. We must turn from this original expression of new *opinion* to a paper by Dr. Furtwaengler, which contains more valuable material still,—the statement of new fact. Dr. Furtwaengler is the one of all Dr. Curtius's able disciples on whom the mantle of his inspiration seems to have fallen, and we are glad that he has drawn the lot of a brilliant and interesting discovery. Every one who has examined the Olympian find of archaic bronzes will remember a fragment of the thinnest possible metal which contains part of a design evidently mythological. The fragment is, from the point of view of the history of art, of the highest importance, but perhaps its special fascination was the difficulty of interpreting it in its mutilated condition. A nude male figure, beardless, stands to the left; a portion of a draped figure, sex quite uncertain, advances with extended arms and seems to be handing some object; between are visible the bent knees of a prostrate figure. The explanation current among archæologists was that the scene represented Ariadne coming to greet and crown Theseus; between them the dead body of the prostrate Minotaur. There is absolutely nothing in the Olympian fragment to make this interpretation unfeasible, but it failed to satisfy some instinct of Dr. Furtwaengler's mind. Fortunately he openly expressed his dissent, and suggested another interpretation. The draped figure might be the aged Priam, the youth Achilles, between them the dead body of Hector. Probably Dr. Furtwaengler had little hope that his conjecture would ever be substantiated. Business took him to Rome to attend the great Castellani sale. There turning over some neglected objects heaped together, forgotten, in a drawer, he came by chance on an ancient Greek mirror, formed in a somewhat unusual way; a small square plate forming the handle and the circular disk. A glance showed him that on this small square was a replica of the Olympian bronze. The missing half was there, and the missing half showed that the design was beyond a doubt not the triumph of Theseus, but the ransom of Hector. The full figure of old Priam came into view leaning on his staff, the rest of the prostrate figure was the human shape of Hector with the bull-headed Minotaur, and to complete the design appeared the god Hermes with his herald staff, who, to do honour to King Priam, guided him through the Grecian tents. No demonstration could be more complete, no certainty more delightful to the fortunate discoverer.

The discovery is interesting as interpreting securely a very ancient bronze, and as such it will perhaps be most widely appreciated; it would perhaps be out of place here to enlarge on the delight that it will give to the specialist in "Vase Types." To have established the earliest type of the "Ἕκτορος λύτρα" is not to have lived in vain, and none knows that better than the discoverer himself, who has made such rich contributions to the history of black-figured vase paintings.

Dr. Furtwaengler made the discovery in the spring, but he wisely kept it *in petto* as a fitting tribute for the autumn festival of his master.

WORKMEN'S HOMES AND THEIR ADJUNCTS.

The third part of M. Cacheux's voluminous treatise* discusses the material and moral welfare of the labouring classes, and opens with pointing out that in every civilised nation there are periodical financial crises which seriously affect the condition of those classes. M. Cacheux believes that if the State would give greater publicity to the commercial information which it possesses, those crises might be prevented; but that is very doubtful,—in this country at all events. However that may be, he is of opinion that a remedy may be supplied by a private Society undertaking such functions as were exercised by certain good men who, in 1848, formed themselves into a central committee for the encouragement of industries in the mountainous tracts in Bohemia. In France, though several similar societies already exist, there is yet much more to be accomplished, especially in the direction of agriculture, which is an industry of great moment. It is well known that France imports very largely foreign produce, and that it must continue to do so unless it can continue to raise the raw material from its own soil. For a long time beetroot and the vine have contributed to the prosperity of many of her departments, but now both those industries are languishing, and it behoves her to seek for fresh productions and to stem the tendency to emigration from the country to the towns. M. Cacheux advocates an extended system of canalisation as one description of useful work which might find ample employment for the workmen who have been thrown out by the stagnation of trade, and instances particularly a project for relieving the Seine from those inundations which have of late years been so disastrous. The estimated cost of that canal is eight millions sterling, all of which has been subscribed, but the necessary authority has not yet been given for its commencement.

With reference to the amelioration of the condition of the labouring classes, there are two ways by which it may be effected, either by raising their wages or else by supplying them with the necessaries of life at reduced prices. M. Cacheux truly observes that a rise in wages, as has, indeed, been proved in our own case, is attended with questionable benefit. In France it seems to have operated undoubtedly for evil,—for it has so tended to increase the price of production as to oblige contractors to resort to foreign countries in which the articles they require are produced more cheaply, and consequently the demand for home labour has proportionately diminished. The case of Mulhouse furnishes an apt illustration of which is the better method of improving the workmen's condition. There, in order to enable them to compete with their rivals, it has been necessary to keep wages at as low a figure as possible; but then care has been taken to make it up in other ways by furnishing them with cheap lodgings, cheap food, and providing for them benefit societies and working men's clubs. It is just because a like interest has not been taken in his workmen by the Parisian employer that the labourers in Paris have fallen into their present unfortunate condition,—a condition from which it is impossible for them to emerge, unless by the intervention of co-operative or other benefit institutions they are enabled to procure the bare necessaries of life more cheaply than is at present practicable.

M. Cacheux follows up his subject by discussing next the description and scale of diet most suitable for the working classes. Doubtless it is a point deserving consideration, but it must evidently vary according to the description of work on which they happen to be engaged. Again referring to Mulhouse, he states that the workmen there used to consume too large a proportion of farinaceous and liquid food; and when restaurants were first started by their employers they grumbled at the comparative smallness of the rations, but that they soon began to perceive they were equally well up to work notwithstanding that they were consuming a far smaller bulk of food. After discussing the alimentary qualities of various articles of nourishment, the author proceeds to explain the best modes for their preparation, and this leads to an investigation of the different apparatus which have been invented for cooking purposes. Where large numbers have to be provided for, as in Workmen's Restaurants, the general arrangements and the best appliances for the kitchen become matters of great importance, both on the score of efficiency and economy. The relative merits of the different kinds of stoves, whether worked directly over the fire or by steam, are likewise discussed, but it does not appear that gas-stoves have as yet been tried in France, at least no allusion is made to them by M. Cacheux. In all the principal establishments in London and the provinces the gas-stove plays an important part, and its superior economy, as well as cleanliness, appear to be generally admitted. The interesting collection of heating and cooking apparatus at the Health Exhibition, lately described in the *Builder*, has no doubt already attracted the attention of our intelligent neighbours, but possibly the high cost of the fuel is one reason why gas-stoves have not as yet been employed in France. The cost of a meal varies apparently at different places, ranging from 6½d. to 9d. according to the quality or quantity of the viands, but a substantial meal of wholesome food can be and is supplied for less at many workmen's dining-rooms in London.

The next subject treated is that of baths, the use of which is daily becoming more popular amongst the working classes. In France more elaborate provisions appear to be made than is customary in England. At the ordinary swimming-baths the price charged varies from 1d. to 2d. per head, and is about

* L'Économiste Pratique: Construction et Organisation des Crèches, Salles d'Asiles, Écoles, &c. Par Émile Cacheux, Ingénieur des Arts. Paris: Librairie Polytechnique; Baudry & Co., 15, Rue des Saints-Pères. (See p. 614, *ante*.)

the same in both countries. The transition from baths to laundries naturally follows, the latter of which constitutes a very thriving industry, and hence our author devotes a considerable space to describing the various operations connected with it. Without following him through his descriptions it will suffice to direct attention to the ingenious apparatus in which the linen is thoroughly scalded and cleaned by steam, and also to the drying machine shown in Plates 59 and 60. At the laundries in the Health Exhibition similar processes, though not applied in exactly the same manner, have been seen in daily operation. It is, however, generally admitted that France excels all other countries in this particular industry; but, at the same time, as English people well know, the little bill of a French laundress is a veritable *article de luxe*.

Societies and associations for the special object of rendering pecuniary aid to operatives come next under review, but the general principles on which they are founded, and the conditions on which they are worked, are much the same as in our own country. In this branch of political economy, however, England is at present the most advanced nation, for in no other country do there exist so many mutual aid and benefit societies. The savings-banks, especially that connected with the Post Office, are amongst the most valuable of our many admirable institutions, and have taken deeper root in Great Britain than on the Continent, notwithstanding that as a nation Frenchmen are undoubtedly much more thrifty than Englishmen.

M. Cacheux concludes his treatise with an examination of several methods of dealing with that class of the community which for one cause or another is unable or unwilling to support itself. "If any work not, neither should he eat" is an Apostolic decree, and were it more rigidly enforced, probably the large number of mendicants who now loiter along our own thoroughfares would soon be diminished; but where there is a large surplus population there must always exist a number of persons who, however willing to work, are unable to procure employment, and it is for such that succour must be provided. There are also many who, owing to physical or mental infirmity, are unavoidably thrown on the care of the public. Asylums for the latter, as well as hospitals for the sick, are to be found in almost every country, but perhaps nowhere do they abound so much as in Great Britain, and yet the efforts made to alleviate the wants of suffering humanity are unable to overtake the numbers who stand in need of help.

M. Cacheux ably discusses the merits and arrangements of the different institutions which have been or ought to be created for the purpose, but it is beyond his power to indicate how or whence the requisite funds for their creation can be obtained. Nevertheless he has done good service by publishing the vast amount of information which he has collected on the subject, and we can only hope that his efforts to ameliorate the condition of the humbler classes of his fellow-men may meet with the appreciation which they deserve, and we would commend his treatise to the attention of the Royal Commission which is now engaged in considering the subject of Housing the Poor.

NOTES.

THE loss to the nation by the death of such a man as Henry Fawcett is one which none who are concerned, however imperfectly, in the endeavour to forward the healthful practical work of the world in this generation can pass over in silence, even though his special influence was apart from the province with which they are professionally concerned. The manly resolution with which, in early life, he set himself to contend against a terrible calamity and to rise above what might have seemed its inevitable consequence in circumscribing his career, and the energy and business-like ability which he brought to bear on the working of the important public institution which he directed under the present Government, are qualities which men in all ranks and professions may admire and aspire to emulate. The universal and almost personal regret which the news of his death evoked from men of all shades of political feeling is a refreshing testimony to the fact that, amidst all the acerbities of party politics, —now, unfortunately, more pronounced than ever,—true nobility of character and honesty of aim will command a respect and sympathy apart from the minor and passing considerations of party tactics. It is, in fact, neither to the politician nor to the Postmaster-General that the homage of universal regret has been especially paid during the past week, but to the personal character of one concerning whom it might be said,—

> "That Nature might stand up
> And say to all the world, 'This was a man!'"

TWO statements appear on the same page of the London morning journals of the 11th current, which may advantageously be read together. One, dated from Paris, is to the effect that "the slow but steady increase of cholera, especially in the eastern quarters of the city, causes considerable anxiety. . . . . There have been 55 cases of cholera, and 22 deaths, in the city and the hospitals from midnight till noon to-day." The other announcement runs, "The Royal Commission on Metropolitan Sewage Discharge met yesterday at 32, Abingdon-street, Westminster." Bearing in mind the semi-official, if not wholly official, expression of the opinion of the noble and learned Chairman of this Commission, addressed to the Home Secretary, to which we recently called the attention of our readers, it is perhaps permissible to express the hope that London may not have much longer to wait for the report of this body of experts. That degree of safety which is due to a thermometric heat below 70 deg. Fahr. is relied on, as we have seen, by the Metropolitan Board of Works. Shall we not observe, until too late, that as this condition has not proved a safeguard in the case of the Seine, it is running an altogether unwarrantable risk to rely on it in the case of the Thames?

MR. WATERHOUSE'S design for the new Liberal Club has been the occasion of a little paper warfare in the columns of the *Pall Mall Gazette*, in which the doctors differ not a little. A capital letter, signed "F.R.I.B.A," published on the 6th, commented on the disappointment felt by some in regard to the design of the building, also stating that Government authority had interfered to compel the adoption of a design in harmony with certain other buildings to be erected on the contiguous site of "Whitehall-court," and that Mr. Waterhouse's first and superior design had thus been shelved, against his will. If this be true, it adds one more to the list of the mischiefs worked in this country whenever official authorities meddle with architecture. "F.R.I.B.A." justly describes the general harmony of the district as "a general harmony of dull mediocrity," and refers to Mr. Waterhouse's tower at the angle of the club as the one striking feature left in the design. Mr. Fergusson, in a letter published two days later, fastens on the tower as a specially objectionable object, which "will dwarf everything in its neighbourhood." Well, as far as that goes, we sincerely hope it will. Mr. Fergusson's argument that the most effective point of the interior plan is sacrificed by relegating it to the provision of staircases and an inclined plane we can quite understand, but Mr. Waterhouse says the plan could not well be arranged otherwise; and he is a master of planning. But as to the architectural question, we should be perfectly thankful to see something different from the respectable commonplace of most of the buildings in the neighbourhood, even if it does "dwarf" them. The most important point brought out in the correspondence, however, is the statement that Mr. Waterhouse had designed something much better and after his own heart, and was prevented from carrying it out by the intervention of bumbledom.

WITH a good deal of Mr. Sedding's diatribe against the modern architectural system, printed elsewhere, we are very much in sympathy; but his criticism is of a very negative description (the very easiest kind of criticism), and too much pervaded by the temper which finds it piquant to say sharp things of other people. "Some people," said Sydney Smith, "think themselves pious when they are only bilious"; and the weakness occurs in regard to architectural as well as moral righteousness. That Mr. Sedding himself has overlooked some branches of knowledge which society imperatively demands from the modern architect, and is in want of the hated "specialist" to help him, is evident from his innocent reference to the "D-trap," as if that were the typical representative of sanitary machinery. He urges that the modern architect should set about training himself more thoroughly. Having regard to the deadly effects of putting unwholesome and inefficient traps into houses, we may reply to the "art-architects" who are guilty thereof, "Que messieurs les assassins commencent." The extraordinary reference to a certain eminent lawyer as the only real architect of the day seems to have been prompted by the reason which Johnson assigned for a certain couplet in Pope. "Why did Pope write that?" "Sir, he hoped it would vex somebody."

A SCHEME, called the Wandle Valley Main Drainage, has recently been completed for the Croydon Rural Sanitary Authority. The district served embraces five villages, with a population of 17,000, and covers an area of 10,106 acres. The watershed contains sixty square miles of chalk, from which the Wandle is fed, and whence it runs over beds of alluvium overlying the London clay. The scheme is on "the separate system," the storm-water being provided for in the old sewers and water-courses, which have been improved for the purpose, while the new sewers as completed measure 55 miles, of which 20 miles have been laid with 9-in. Doulton pipes. The system was designed to allow as much of the sewage as possible to be carried to the land by gravitation, and where this was not possible a low-level sewer was laid, from which the sewage, after its arrival at the pumping-station, is pumped up into the gravitation outfall an average height of 20 ft., and then flows into the depositing-tanks. The sewage, after it has been deprived of floating matter, and when the solids have subsided in the tanks, is filtered through a 4-ft. bed of coke, and then passes on to the land set apart for filtration and its final purification. The sludge is first treated with milk of lime, and then pressed into cakes 2 ft. in diameter and 1½ in. thick; and a farmer in the neighbourhood has contracted for the cake produced for twelve months, paying a sum of 42*l.*, and undertaking to keep the works free from sludge cake. Owing to the area, some 29 acres, set apart for filtration purposes being very swampy and liable to be flooded, it was necessary to construct a clay-puddle dam entirely round it, and to 1 ft. below the surface of the London clay. In the upper portion of this area an artificial filter was made of alternate 3-in. layers of burned ballast and porous soil through which the sewage passed first into the natural filter. The land irrigated by the sewage in its passage is devoted to the cultivation of rye grass, for which there is a good demand, the crops realising 30*l.* per annum.

THE case of "Ex parte Cooper *in re* Morris," reported in the *Law Reports* of October, though it was decided some time ago, is of a good deal of interest to employers and workmen. A large firm were in the habit of deducting from the wages of their workmen sums in respect of a "doctor's fund" and a "reading-room fund." The sums so deducted were from time to time handed over to the doctor and to the treasurer of the room, and the workmen got their medical attendance and literature without further payment out of pocket. The firm became bankrupt, and at the time there was a sum in respect of each fund in the employer's hands, not yet paid either to the doctor or to the treasurer. In the liquidation the workmen claimed to have a right to be paid back, so to speak, the sums yet unpaid

to the doctor and treasurer, whilst the employer's trustee urged his claim. The Court of Appeal, over which the Lord Chancellor presided, was of opinion that the workmen's claim was a valid one, for, by the Truck Act, the wages were to be paid in current coin, and the wages which these sums represented not having been paid, but remaining, as it were, in the hands of the employers, they fell within the meaning of the Bankruptcy Act, which gave a preferent claim for wages. The Court, however, very carefully guarded itself from allowing the decision to extend to sums which had been actually applied to the purpose for which they were set aside. For, as Lord Justice Cotton said, that "might possibly amount to a payment in cash, not to them, but to their agent or person appointed on their behalf to receive it." There can be little doubt that the workmen could not have a legal claim to any such sum, nor is there any moral reason why they should.

IN the professional papers on Indian Engineering for the month of September there is an interesting article on "Irrigation from Wells in the N.W. Provinces," where three million acres of various crops are watered by their means. When so large a tract is dependent for its water from this single source, it becomes a matter of great importance to ascertain how the surface level is to be maintained; for, as wells come to be multiplied, it is obvious that the water stratum must necessarily become more depleted, and therefore the wells, especially the older ones, will in time run dry. To ascertain the relative level and the rate of inclination of the underground supply, a series of cross sections at five miles apart were run across from the Ganges to the Jumna, and intermediate observations taken at every mile of the surface level in existing wells. The levels were then laid down in the Ordnance Survey Map, and the cross-sections show with more or less exactness the slope of the subsoil water, and point to the conclusion that the supply cannot be derived from the great rivers, or by percolation from the hills, but that it is drawn directly from the local rains, which are collected in adjacent depressions. The author of the paper, Major Clibborn, deduces from this that drainage operations must be carried out with circumspection, or else the subsoil will be so deprived of water as to render existing irrigation from wells very precarious. In the absence of canal irrigation the point in question deserves consideration.

A CORRESPONDENT writes:—"The proposal to hold an American Exhibition by Americans in the heart of the British metropolis during 1886" (to which we have before referred) "is undoubtedly a new departure in Exhibition politics, and if it succeeds in coming to the birth, will undoubtedly produce an exhibition 'boom' for that year in conjunction with the Colonial Exhibition; but some of those who are more deeply interested in them than the general public, viz., the exhibitors, do not hesitate to condemn them pretty roundly, as causing themselves, directly, an enormous amount of inconvenience and expense, and, indirectly, a loss of trade, by throwing open to all the world their particular modes of manufacture, without obtaining for them any reciprocal advantages. Unfortunately, the Exhibition system is not likely to decrease, but rather to increase, seeing that it has hit the taste of the English *flaneur*, who likes to be amused, while fancying that he is being instructed, and the speculation is usually too paying a one to be influenced by such trifling considerations as injury to national trade and invention." Apart, however, from these melancholy considerations, an American Exhibition in London will undoubtedly be very novel and very attractive; for, to our shame be it spoken, our American cousins know us, and are anxious to know us, much better than we know them; and as the whole Exhibition is intended to be arranged in a sequence or consecutive order, the visitor will obtain a kind of panoramic idea of the country from east to west.

IT is stated in a recent number of the *Lumber World* that the ordinary life of unprotected timber structures is not more than twelve or fifteen years. If they are exposed to moisture in the presence of air, especially in a warm situation, or to alternate wetting or drying, they will decay more rapidly. Sap and moisture retained in timber by painting or closing in the sticks before they are seasoned, will cause decay of a very insidious kind, as it works in the interior, leaving an apparently sound exterior, which, of course, has the first opportunity of seasoning. It follows, therefore, that paint on unseasoned timber is more hurtful than serviceable. Large pieces of timber dry so slowly, that decay may set in before they are seasoned throughout, and for this reason pieces of small scantling are preferable to large ones. The best-seasoned timber will not stand exposure to the weather more than twenty-five years or so.

WE called attention last week to the manner in which the splendid modern Indian gateway sent from Gwalior was left to lie in the grounds of the South Kensington Museum. Since then a paragraph has appeared in the daily papers to the effect that the gate will be lent to the Commissioners for the Indian and Colonial Exhibition to be held in 1886. Till then, we suppose, it is to lie where it is,—not a very graceful recognition of a remarkable gift.

THE *Melbourne Argus* states that surveying operations have been undertaken by a French man-of-war for the purpose of ascertaining the feasibility of laying a submarine cable between New Caledonia and Queensland. It is to extend from Gowen, in the north-west of New Caledonia, to Sandy Cape, a distance, as surveyed, of about 500 miles. As the results of the survey have been pronounced very satisfactory, there seems very little doubt but that the cable will ere long be constructed.

VOL. VII. of the *Magazine of Art*, which has been forwarded to us, is in the main a delightful specimen of an artistic journal; varied in its literary matter, much of which is very good, and signed by good names; and admirable in the execution of its illustrations. We could wish, however, that the examples of architectural writing and criticism were better. Here, for instance, is a certain Mr. Aaron Watson, who indites reflections on "the Lower Thames" and its structures, and while he speaks of Somerset House as a "Philistian structure," refers to Blackfriars Bridge as "beautiful enough in itself," only spoiled by the proximity of the railway-viaduct. Now, worthy scribbler, thou art thyself the Philistine, who canst not discriminate between the merits of really refined Classic detail, such as that of Somerset House, and crude, coarse, would-be Gothic, like that of Blackfriars Bridge, which is, besides, a complete sham in its outward and apparent structure.

THE following Committee has been appointed, on the nomination of Mr. Shaw-Lefevre, to consider the subject of the "restoration" or other treatment of the exterior of Westminster Hall:—Mr. W. H. Smith, Mr. Rylands, Mr. Beresford-Hope, Sir John Lubbock, Sir R. Wallace, Sir E. Reed, Sir H. Holland, Mr. Peddie, Lord R. Churchill, Mr. Walter, Mr. J. Huntly McCarthy, and Mr. Shaw-Lefevre. Considering the subject to be discussed, some of these names are truly astounding, and seem to leave one no resource but silent prayer.

Bristol School Board.—The architects for the new schools to be erected at Windmill-hill, Bedminster, for which the amounts of the tenders were published in our last number, are Messrs. J. W. Trew & Sons, of Bristol, whose plans were chosen in an open competition. The quantities were prepared by Mr. Wm. L. Bernard, of Bristol. Mr. J. Fletcher Trew, M.S.I., of Gloucester, arranged the sanitary work and supplied the quantities for that section. The architects' estimate for the school, as arranged in scheme A, was 6,500*l*.

THE MODERN ARCHITECT AND HIS ART.

WE give the main points of Mr. Sedding's very piquant but *very* long paper read at the last meeting of the Architectural Association:—

It is idle to shirk disagreeable questions, and so I begin with a simple proposition which covers much of the ground we shall traverse to-night. Is architecture, as practised by the modern architect, worth living for? To my mind the question is most suitable to the present time. This is a time of felt uncertainty, of stranded purposes, of searchings of heart,—a time when the issues of things connected with the arts of design are hanging in the balances. This is a time, too, of disillusionising alike for architects and for people, when we ourselves are not quite so confident about our method of pushing architectural design forward by means of impulses of an essentially fleeting nature, and when people are beginning to realise that every branch of architecture is well represented by outsiders, and when they are beginning to question the *raison d'être* of the architect at all.

This question is, then, a practical one, and one which it is desirable to face and to answer. It at once puts the modern architect and his art in their right place. If you take up architecture as your vocation, to be followed with the ardour of a religion, I am not sure that you will succeed in gaining riches or fame; you may have to be happy with small opportunities and small gains, and have to live a life of quiet, unnoticed worth. But you will be happy and contented and grateful all the same. If, on the other hand, you go in for architecture as a profession which only needs the efficient handling of a T-square and ruling-pen, you may, if you are a good, steady fellow, rise to be an eminent practitioner. And if you are a successful practitioner your rewards are great: you may have access to the best society and to the best columns of the *Times* newspaper; you may be a lion at evening crushes, and wear brown velveteen; you may pose as the patron of the very Fine arts, and be a judge of *bric-à-brac*, and a connoisseur of Queen Anne teapots, Chippendale chairs, and such like; you may even hope to be the F.S.A. and the F.R.I.B.A., and even the P.R.I.B.A., if you have paid your subscription and are alive when your turn comes. But as for art, and the mastery of the crafts, and the power of colour and form, and all that sort of thing, you may neither have any, nor need your friends ever suspect that such things come within the make-up of the modern British architect.

To proceed. I said just now that this question touching the worth of modern architecture as a serious life's pursuit puts our art in its true place. Instinctively one feels that while it is applicable to the modern architect and his art, none but a fool would have put it to William of Sens, Jocelyn of Wells, Alan of Walsingham, William of Wykeham, Thomas Chard of Glastonbury, or of Bramante, Michelangelo, Christopher Wren, Inigo Jones, or Adams or Chambers, and there must be a reason for this.

Again, none but a fool would ask the modern musician, or the sculptor, or the painter or poet, if his art were worth living for. Indeed, here are living arts, each with its ideal conception to symbolise, each with its mission to stimulate, delight, and console mankind, and to raise men's minds out of money-grubbing grooves into a less selfish, less sordid, less common-place atmosphere. It is significant that in each of these cases the artist is his own craftsman; he thinks his own thought, clothes it himself, and spares no pains in the elaboration of the clothing. He keeps no "ghost," and if he does he is not thought to be respectable. But the architect's "ghosts" are legion,—on his premises and off them,—and he is not one whit ashamed.

Again, we must confess that the other contemporary arts I have enumerated have been affected for the better and not for the worse by the influences of the day. Each has won new triumphs, each has found out new chances of appeal, new domains for display. But not so architecture, for while it has gained nothing it has lost nearly all. In respect of the use of iron for constructive purposes and of patent sanitary appliances, which builders and sanitary engineers have devised for us, we score something. Yet, however blessed the iron joists and D-traps [?!] are, and however lucky we are to be able to use them, the architects of

old, who knew them not, were infinitely more accomplished all-round men than ourselves; and I do not know that, after all, our houses are either more stable or more sweet and wholesome for body and soul to inhabit than the old homes of old England.*

But further. The practice of these arts of colour, sound, form, and word directly conduce to the development of artistic genius; nor could you be a successful composer if you had no musical genius, nor an eminent literary man without literary genius. Yet you can be accounted an eminent architect, and reap all the honours of the profession, without possessing or feeling the want of artistic genius.

In putting the case thus strongly, do not suppose that I am blind to the noble gifts and genius of certain architects working with us, and shedding their helpful influence amongst us at the present time; and, but for my resolve to keep this paper impersonal, I would name them and speak of them with all the genuine admiration and respect I feel for them. Do not mistake me on this point; I speak of the rank and file, and not of these. And I ask whether architecture as now practised ought not rather to be accounted as a "useful" than as an "ornamental,"—or, as some would call it, a "fine,"—art? I ask whether architecture can any longer be termed the "Queen of Arts," when all that remains of her is the skull and the feet and the palms of her hands?

I ask if it be not true that architecture has ignominiously resigned her throne, lost her honours, and bartered the sceptre of pre-eminence with which she has held sway from time immemorial, and only reserved for herself the sovereign right of levying a tax of 5 per cent. on other men's labours? I ask whether it is not true that the engineer has (whether civilly or uncivilly it matters not, as the thing is done) robbed the architect of one-third of his domain on the one side, and whether the decorator and manufacturer have not between them robbed him of another one-third on the other side? I ask, whether the architect of to-day is, or need be, anything more than a paper-draughtsman, to sit on a stool and invent new sorts of doors and windows? I ask, whether his business in life is not that of a designer of shells of houses for decorators and manufacturers to finish and furnish, and who varies this jackal occupation by occasional jobs for an engineer, who hires him to do the "pretty" upon a bridge or railway station? Yes; and such of us who like to see iron skeletons clothed in shoddy ornament may, after refreshing our bodies, refresh our souls at the York or Bristol railway station, and realise at the same time the mission and scope of the modern architect and his art.

But in order to clear the way for some few practical observations, I must arrange the subject under three heads:—(1) What is architecture, and what were the functions of the architect in old days? (2) When, and from what cause, did the change from the old to the new system take place? (3) Is it possible for architecture under its present conditions to be carried out upon the old lines, and, if so, by what means? Here are three points, each of which would serve as a theme for a long lecture, so that my treatment of each must needs be brief and simply relative to the matter in hand.

As to the first point, although addressing a professional audience, I cannot define architecture as building erected after an architect's design. I would define architecture as imaginative building; in other words, building which expresses the invention or imagination of the builder, and which appeals by this means to the imagination of the spectator. If it is to answer to the description of architecture, the building must have a soul as well as a body. The body is the structure answering to the primary purpose of its erection, and this body should be stable and convenient. The soul is that superimposed something extra to the body,—that something which is provided beyond the demands of mere utility, and which is really the expression of the builder's thought and his mode of appeal to the sympathy and imagination of the spectator. In this definition you get the three cardinal virtues of architecture represented, namely, stability, which relates to science; convenience, which relates to good sense; and beauty, which relates to taste.

Naturally, the primary purpose of a structure, combined with other like conditions, settles its character and the fit extent of its decoration; and yet, while it is quite fair to define the word architecture as the art of building nobly and ornamentally, you cannot gauge the value of a structure by the amount of its ornamentation. Dance, who built old Newgate, was an architect, and, although his structure has dead black walls of rough-hewn granite, relieved only here and there with niches and statuary, and a savage repellant air, it is imaginative building, and speaks directly to the imagination of the spectator of violence and doom in the true grim Norman manner. A mere builder would have put plain brick walls. And architecture, all the world over, has the same characteristic qualities,—however different the types and the styles of the art represented, however different the scale of the structure, however different the culture and aims and methods of the builders,—the architecture carries the impress of thought or invention, or imagination befitting an ornamental art. Architecture is truly a human art, a volume, and a record of human thought.

The architecture of the modern world answers, in all essentials, to the architecture of the ancient world, however different its aims, and character, and mode of appeal. With regard to the latter point, the Classic is a more intellectual art, and demands a more intellectual appreciation. The Greek architect is a man of complete culture, learned in philosophy and geometry, and he addresses his peers. This explains why it is that some of us find the heights of Classic art cold, and the atmosphere that surrounds it bleak and grey. The modern architect, like the ancient, is the right man in the right place; and, whether he be cultured or uncultured, prince or ploughman's brother, he is the most skilled man in the building crafts upon the job.

Luckily for me, it is immaterial to our purpose to inquire as to the social status of the architect as a person, or whether he had soft hands or hard. One thing is certain about him,—cultured or not cultured, hodsman's cousin or not,—he contributed the requisite amount of knowledge and theoretical science, and did not retain experts; he was in direct contact with the work as it grew up; he saw how things were done, and was not the mere figurer of details at an office; he was the familiar spirit of the building, and not the distant dictator of its details. And besides having a general knowledge of handicrafts, he was master of at least one. Some architects were modellers, some carvers, some workers in marble or in gold or in ivory, and, plainly enough, we can infer that they worked in workshops, and not in offices or studios. "In Greece," Winckelmann says, "the best workman in the most humble craft might succeed in rendering his name immortal."

Let us turn for a few moments to Italian Mediæval art, for we know so much more about the architects of Italy than of those of any other country, and they afford us a ready type of men whose functions covered every matter pertaining to construction and ornament. The Italian architect was engineer, builder, painter, decorator, sculptor, modeller, metal-worker, goldsmith, and the rest; or at least you might expect that the same man could paint a picture, carve a subject, draw and model a bit of ornament, make a gold casket or an urn, design a dress or a fabric, build a church, or a palace, or a bridge. Think of Da Vinci, with his superb power of colour and form, of his magnificent designs and projects in art and mechanics, and set this man with his marvellous range, his almost superhuman grasp of mind and boundless ideal, against our puny selves poring over our D-traps, and ventilation, and quantity-taking, Metropolitan Building Acts, &c.; and if, after instituting the comparison, you are satisfied with the scope and issues of the modern architect and his art, then I think you are eligible to be a Fellow of the Institute without further ado, and I will give myself the honour of proposing you on the first convenient occasion.

Now you cannot properly account for the high condition of Italian art in the Middle Ages by saying that the Italian people are a phenomenal people with art in the blood. If so, art would be flourishing in Italy at this time, and it is not. The fact is, that whatever art you examine of any period, or of any country, you will invariably find that the excellence of the work is only commensurate with the ideal. There is no luck, no chance about it, it is a simple matter of cause and effect; and if the members of the Institute had as high an idea of architecture, and of the various arts and sciences connected therewith, as they have of the privileges of the profession and of their professional status, English architecture would be very different to what it is. It needs no prophet to foretel that so long as the modern architect contents himself with grovelling views and consumes his soul in small things, so long will he grovel and do small things. In Italy in the Middle Ages there was a grand ideal to animate the artist and to sustain his art. Of course many things conspired to favour art there and then, beyond the consanguinity with artistic races which doubtless had its effect. Italy was then what England is now,—the world's emporium, the seat and centre of the world's commerce. There was wealth, and the desire to spend it upon beautiful things. There was the ambition of cultured nobles. There was the inheritance of fine traditions. There was a lovely climate and a flowery land. There was the innate passion for beauty of a passionate and beautiful people. But what raised Italy to her high-water mark of art was the measureless value set upon execution. "Design" then meant something more than it at present does in an architect's office, or in our classes of design. It meant the power to *do* as well as to *draw*. It meant executive power and technical skill. It meant that what the brain of the man could conceive, that the hand of the man that conceived it could execute.

Coming to our second point. We have to inquire when and from what cause the change from the old to the new system of architectnral practice took place. Ever since English architecture was English architecture, it had been born and bred and fostered and propagated in English workshops. The Gothic revival meant not only confusion to architecture, but death to the art of the workshop. I do not mean for a moment that the art of the workshop, or the craft carried on there, were of a high order before the inauguration of the new condition of things, but I speak of one system of design as opposed to the other. People, when they are uncomfortable about the results of the Gothic revival, are fond of pointing to Gower-street as a justification for the annihilation of traditional art. But you may depend upon it, had there been the demand for higher things, there would have been the supply. However homely, or, if you like, however ignoble, the art done just before the new stimulus came, the traditions of the better times still lingered on in the workshops, and the bricklayer, the carpenter, and the plasterer who hung on were men with some notion of style, and some love of detail. The Early Queen Anne had leanings towards the picturesque Elizabethan, and the houses of the period are singularly well adapted to English minds and English scenery, and their fittings are in nowise unworthy of the best traditions of the English workshop.

But I have yet to account for the decay of architecture before the Gothic revival, and also for the change from the old to the new system of architectural practice; and the explanation I offer for the one applies to the other. I cannot see that you could expect that art should engage men's attention when you remember the vast number of social, political, and religious problems that were then agitating England. Professor Seeley's valuable book on the "Expansion of England" has helped me to see why the faculty for design died out with us in the eighteenth century, for he shows how entirely English interests were then centred in America and her other colonies. Think of the war-ships that had to be built, the armies to be equipped, the colonies to be fought for and occupied, and, later on, think of the machine-looms and steam-engines to be invented and perfected, and the railways to be made! How naturally does the engineer spring into existence amid the demand for the useful arts! How naturally does the eye of the historian pass on to the record of that noble set of engineers and mechanists, and mathematicians,—Davy, Watt, Cavendish, Arkwright, Herschell, Stephenson, and Brunel! And how natural that the men of genius should gravitate,—not to the ornamental arts as in earlier days, but to the useful arts!

And now, having considered the origin of the engineer, who is one of the cuckoo intruders in the architect's nest, let us turn to the origin of that still bigger bird,—the ornamentalist or expert in the decorative arts. I said just now

* They certainly will not be if Mr. Sedding puts D-traps in them.—Ed.

that the Gothic revival had inaugurated the change from the old system of architectural practice to the new. Before this revolution of taste took place the architect was the leading spirit of the building he designed, but he did not stand alone. His designs or models for stone, brick, iron, wood, and plaster work were backed by the traditional skill, and types, and methods of craftsmen, each of whom was more or less of an artist. The architect was only the prime minister: the workmen represented the departments. He was only the president for the time being of a little republic of art. From what we know of Wren, Inigo Jones, Chambers, and Adams, the architect was conversant with every branch of the work included in the structure. He supplied the plans and sketch-elevations, and the leading details (as in John Thorpe's case), but the hundred and one odd details required for after-thoughts and emergencies might fall to the conduct of the workman, who, at all events, would be quite competent to deal with them if so required.

The Gothic revival upsets all this harmony of procedure, for the whole of the traditions of the past must be sacrificed, and new types, mouldings, traceries, carvings, groinings, decorations, and the rest of it, are introduced, about which the workman knows nothing, and cares less.

Now my explanation of the origin of the specialist decorative artist is this,—Having destroyed the old system of art, the Gothic revivalist found himself unable to construct a new system that would work; he had accepted a task which he was unable to cope with. He had a strong love of art, a true sense of the intimate relations of the lesser arts with architecture; but he found things too much for him, and, instead of raising an army of fellow-labourers in the workshops, he called into existence certain specialist assistants to aid him in the conduct of his practice, where he lacked time or ability to carry out the work himself. The mischief of the whole business has been that he was only a learner himself all the time he was carrying out works in various styles.

I come now to my third point. Is it possible for architecture under its present conditions to be carried out upon the old lines, and if so, by what means? To the first division of this point my short answer is,—No and Yes. No, if the present conditions are to remain unchanged. Yes, if things change for the better. In dealing with the whole matter before us, I do not want to arraign modern art for difficulties inherent to it, nor do I want to multiply the responsibilities of the architect. That some of the higher branches of an architect's work have been abandoned is undeniable; and I plead for the recovery of these at any cost. In claiming this I do not desire to extend the radius of the architect's proper work. I am even arguing for the lessening of his labours by bringing the handicraftsman into a more active participation in the work he has to do. This was the old system, and it is the only practical solution of the case.

I grant you that, according to the present state of things, specialists must exist to do such things as these,—to superintend the imitation of old work; to carry out decoration in a given style, Pompeian, Egyptian, Classic, or Gothic; to restore or build Gothic or Classic churches; Elizabethan, Jacobean, or Georgian houses, and the like. The question, however, arises here,—Are we to go on imitating the styles of the past? Specialists are necessary if we do go on in our present courses; but if we are to get out of the mists and on to the hill-tops again, we must train ourselves for our future liberty. If we want to perpetuate chaos and will-o'-the-wisp art, I do not know that we can devise a better means to that end than the establishment of representatives of the rival styles and rival trickeries of the day. But surely we do not want practitioners of one accomplishment or one idea! Let us take courage and look forward to the time when the jumble of styles will be cleared away or reduced to a system. Depend upon it that it will not be the one-eyed, or one-legged, or one-armed, or one-idead specialist practitioner that will then be sought for, but it will be the architect with the most individuality, the most culture, the most skill, the most efficient training, that will be sought for, and found most useful to the architect of the future.

May I divert your interest for one moment from that all-important matter, the modern architect and his art, and ask you to look at the British workman. What is his condition? What are the issues of his life's work? What have you done for him? We left him in the eighteenth century, a magnate according to his personal qualifications in his little parliament of art, the workshop, evolving architectural types, and putting his whole soul into his work. In those days he was an intelligent being, following his craft joyfully because he excelled in it, and knew what he was about, and had a felt place in the world. You have scattered those workmen, you have dissolved these little republics of art that in old days held sway in every town and village in the land, and what have you put in their place? You have drowned the English handicrafts, by opening up the sluices of a ceaseless tide of archaic types, and how has your eclecticism affected the British workman?

Just think of all the sad, bad, and mad architecture that has passed under the British workman's hand, say in these last thirty-five years. In 1850 he was rearing a Norman apse upon the ruins of an old chancel that had been destroyed in the interests of morality and purism. In 1855 he was building a thirteenth-century hotel, with details cribbed from Salisbury Cathedral, and a bank adjoining it in the Ducal Palace style. This took him some time. In 1870 we find him titivating an old Queen Anne house in a Gothic manner; and in 1880 he was titivating an old Gothic house in the Anglo-Foreign "Early English" Queen Anne manner; and now, in this year of the architect's salvation, he is satisfactorily completing the memorial of the nineteenth century at the west end of St. Alban's Abbey, under the reputed direction of our all-accomplished, soft-handed, "emancipated," and only truly British architect, Sir Edmund Beckett, Q.C.

Now I want to know if we cannot do something to regenerate the art of the builder's yard and to raise the workman's position; and, if no higher motive affects you, think how it is for the interests of the modern architect and his art that you look steadily into this matter and do your best in it. I am firmly persuaded that there will be no good architectural design, and no good execution, until the craftsman can be brought to participate with the architect in the working out of architectural ornamentation. It is just one of those things about art which marks its divine origin and inherent dignity. You can get faultless mechanical work out of machines, and you can get good mechanical work out of human machines, but noble handlabour is only found where the workman uses his intelligence, and where he is able to express the individuality of the individual. I would say, then, begin the work of regeneration by throwing away all your petty professionalism. Give the workman his rightful participation in your aims. Let him see into your great mind. Make him something more than the transcriber of your hesitating lines. Lift him nearer to your own level of knowledge so that he may know something of the essential qualities of the style he is working in, and may at least interpret your thought sympathetically, render in his own idiom the things you put before him, and find some way of escape for the soul within him. Thus, and thus only, will you get good architecture and good sympathetic workmanship.

I conclude this paper with two propositions which aim at the amelioration of some of the evils I have here enlarged upon. The first is as to the selection and classification of the architectural types now in vogue. The second relates to the provision of technical education for architects and craftsmen. With regard to the first point, it is clear that no scheme of architectural design has ever been practised without a basis of workshop traditions. Shall we then,—is it worth while to try and formulate our tentative styles and to systematise our distracted types, with a view to rendering things permanent and to assist the workmen? If so, you must have a grammar and an alphabet before you can form words and sentences. Now it so happens that never since the world began has so much architectural knowledge been accumulated as is now stored up in the brains and on the shelves of the English architect. Why, then, should not these experts be set to work to formulate and render into serviceable shape the leading mouldings and forms and features of the styles in vogue? Why should not the destroyers of old English traditions do penance and make reparation for their naughty deeds, and build up new traditions? Why should we not have a well-arranged series of details of arches, capitals, bases, plinths, friezes, cornices, staircases, doors, windows, &c., for workshop use?

The second proposition is to have a technical college for the instruction of architectural design, to be for the use of architects and craftsmen. If modern architecture showed itself in as attractive a form to the public as English music does, the scheme would receive the attention which we who know our pitiful state think that it deserves.

What we want is not so much men who can design in many styles of more or less remote antiquity, or men who can sketch well, but men of aim who can lead the aimless, men who by their personal acquaintance with the handicrafts and personal participation in the production of ornamental art can build up new traditions for the workshop, restore the credit of English workmanship, and recover the lost ideal of the English architect.

Of the discussion which followed, we give a report on p. 653.

PROTECTION OF LIFE FROM FIRE IN THEATRES, &c.

After the catastrophe at the Ring Theatre, Vienna, the public became a little nervous as to the state of the theatres in the metropolis, and questions were repeatedly asked in Parliament as to what steps were being taken to secure the safety of the public in case of fire or panic occurring while performances were going on, and ultimately pressure was brought to bear upon the Metropolitan Board of Works to put in force an Act which was passed in 1878, but had been lying dormant as far as theatres or other places of public entertainment were concerned until the scare occurred.

In 1882 the Board caused surveys of the whole of the theatres to be made, also including therein some of the principal music-halls, and proceeded actively to put in force the above Act, viz., 41 & 42 Vic., c. 32, s. 11. Section 11, applying only to houses, rooms, or other places of public resort licensed at the time of the passing of the Act, enacts that whenever it appears to the Board that any of the above places which are kept open under letters patent, or of a license granted by the Lord Chamberlain or Justices of the Peace, are so defective in their structure that special danger from fire might result to the public frequenting the same, the Board may, with the consent of the Lord Chamberlain, as to theatres under his jurisdiction, or of the Home Secretary, in other cases, if in the opinion of the Board such structural defects can be remedied at a moderate expenditure, by notice in writing require the owner of such house, &c., to remedy such defects within a reasonable time to be fixed by the Board, and if such owner fails to comply therewith, a penalty of 50*l.*, and 5*l.* a day while such default continues, is entailed. An appeal to an arbitrator to be appointed by her Majesty's First Commissioner of Works could be had upon notice being given to the Board fourteen days from the service of the requisitions.

Sections 12 and 13 of the same Act empowers the Board to make regulations as to new theatres, &c., and states that no future new licence is to be granted unless the certificate of the Board is first obtained, and also empowering the Board to grant a conditional licence to any premises about to be constructed when applied for.

Now as to the working operation of the Act under section 11 of the same, applying only to places licensed at the time of the passing of the Act. The first place to try the effect of arbitration was the Royal Music Hall, and, upon the arbitration, it was found for the first time that the Board had no power to make requisitions which would impose the acquisition of land not in the possession of the owners; and, by the arbitration, the owners succeeded in evading an important requisition and the consequent expense by its fulfilment. The next was the Lyceum, and afterwards Drury Lane. In all, six theatres and three music-halls have tried arbitration, the Board's requisitions being mostly confirmed with slight modifications, and for a new Act the same seems to have worked very smoothly.

The requisitions of the Board were confined mainly to the providing of efficient proscenium

walls (many of the theatres being without, and others being provided with, walls which in modern days were not thought sufficient to resist a large volume of fire), additional staircases, strengthening existing supports for the public coming in and out, and making all doors, &c., to open outwards. Upon inspection of the theatres many of the dressing-rooms were found to be very objectionable, and that a large amount of rubbish existed; defects which, by the action of the Board, although not coming strictly within the provisions of the Act, have been remedied.

The Board having now dealt with the whole of the theatres in the metropolis, do not propose to proceed further unless a fee is paid. This seems a very objectionable course. Are we to go back in a few years to the old state of things which existed before the Act of 1878 was put into operation?

Owners of theatres will speedily efface what has been done by the Board. Doors which should be kept closed will be left open, and *vice versâ*. Exits will be blocked up, gangways will be utilised, and other necessary works will be left undone. Whereas, if the Board still kept the question of further requisitions open where owners had infringed the former ones, their alterations would work permanent good. There is yet one other point, the most important one of all, viz., the acquisition of adjoining property; the Board having been much cramped in their operations through not having the power to compel the owner to acquire property for the purpose of securing a safe exit for the public. This should be done, and can be easily dealt with by the Board under the Lands Clauses Act, directly the necessary Parliamentary powers have been obtained.

ART LOAN EXHIBITION AT BRIGHTON.

Visitors to Brighton during the next few weeks may pass an hour or two very pleasantly in inspecting the contents of the Art Loan Exhibition which was opened the other day. The Exhibition is being held in aid of the funds of the Brighton and Hove School of Science and Art. The pictures are, almost without exception, by eminent masters. The Picture Gallery adjoining the Free Library has its walls covered with 130 works, all of them lent by their owners. Sir Frederick Leighton, P.R.A., is represented by three works,—"Summer Moon" (his finest production, to our thinking), "The Sisters," and "Lieder ohne Wörte." Mr. Millais's "Dropped from the Nest," a little girl (apparently a portrait) holding a bird in her hands, has been lent by Mr. W. Cuthbert Quilter, who, with Mr. James L. Ashbury, Mr. J. J. Brown, Sir Julian Goldsmid, Mr. J. H. Trist, Mr. J. Staats Forbes, Mr. Louis Huth, Mr. J. P. Heseltine, Mr. Martin Colnaghi, Mr. A. Morrison, and Mrs. Hill, are amongst the most copious contributors. Space fails us to mention all the notable pictures (of which there are many). Though most of them have been seen in exhibitions within the last few years, there are others which are not likely to be seen for some time to come after the closing of the present exhibition except in the possession of their owners. The collection includes good specimens of the works of John Phillip, R.A., J. D. Watson, John Brett, R.A., H. W. B. Davis, R.A., Mark Fisher, Edwin Long, R.A., B. W. Leader, A.R.A., J. C. Hook, R.A., G. A. Storey, R.A., J. Linnell, Frank Holl, R.A., G. H. Boughton, A.R.A., W. P. Frith, R.A., P. R. Morris, A.R.A., G. Romney, R.A., W. Etty, R.A., P. F. Poole, R.A., W. Q. Orchardson, R.A., H. Stacy Marks, R.A., G. Mason, A.R.A., Keeley Halswelle, A.R.S.A., R. W. Macbeth, A.R.A., Briton Riviere, R.A., John Pettie, R.A., W. Holman Hunt, Thomas Faed, R.A., R. Ansdell, R.A., Luke Fildes, R.A., E. W. Cooke, R.A., Sir David Wilkie, F. Goodall, R.A., David Cox, Clarkson Stanfield, R.A., Sir Edwin Landseer, R.A., J. Constable, R.A., T. S. Cooper, R.A., George Morland, J. M. W. Turner, R.A., David Roberts, R.A., J. C. Horsley, R.A., Erskine Nicol, Val Prinsep, R.A., F. R. Pickersgill, R.A., and Hubert Herkomer,—to mention only some of the names. Most of these masters are represented by two or more works in the picture-gallery alone, while some of them are represented by additional works on the screens in the Corn Exchange. Rossetti is exemplified by a female head and bust, "Queen of Hearts," lent by Mr. J. H. Trist. A case of miniatures, by Cosway, is lent by Mr. Josephs. So far we have spoken only of English painters, but amongst the foreign painters of works exhibited are Millet, Israels, Van Haanen, Diaz, Munkacsy, Corot, Koekkoek, De Nittis, Rousseau, Fortuny, and Boldini.

In the Corn Exchange is arranged not the least interesting part of the Exhibition, including works by Sir Joshua Reynolds, Andrea del Sarto, Raffaelle, Sassoferrato, Canaletti, Rembrandt, Van Ostade, Jan Steen, Wouvermans, Sir Godfrey Kneller, Romney, Sir Peter Lely, Gainsborough, R. P. Bonnington, John Hoppner, R.A., Hogarth, Zoffany, Turner, Gerhard Terburg, Lucas Kranach, Vandyke, Murillo, and Holbein. On the screens in the galleries are Turner's plates from the "Liber Studiorum"; etchings by Cruikshank, Seymour Haden, Whistler, Méryon, Rajon, and others. Another exhibit worth looking at is a small frame containing a well-executed coloured drawing by Charles Mathews, the actor, who, as will be known to some of our readers, was educated as an architect. The drawing in question was made by him in 1824, and represents the Loggia of the Palazzo Belvedere at Naples. It is mentioned in the "Memoirs" of Lady Blessington.

On the ground floor of the Corn Exchange is arranged a series of cases containing selections of porcelain, metal-work, &c., from the South Kensington Museum; while of *bric-à-brac* generally there is a large and interesting display. There are also several good specimens of Chippendale and other furniture. There is a series of rooms intended to illustrate seventeenth and eighteenth-century interiors, and these contain some quaint furniture and utensils. On the occasion of the visit of H.R.H. the Princess Christian to the Exhibition, last week, these rooms were rendered more complete and attractive by the presence of a number of ladies in costumes of the periods represented by the rooms. We may add that Mr. Charles E. Clayton, architect, Brighton, was entrusted by the executive committee with the arrangement of the exhibits in the Corn Exchange.

The exhibition (which will remain open until the end of December) is well lighted at night by the Swan-Edison incandescent electric lights.

THE ARCHITECTURAL ASSOCIATION.

The ordinary meeting of the members took place on the 7th instant, Mr. Cole A. Adams, president, in the chair.

Mr. J. D. Sedding read a paper on "The Modern Architect and his Art," a portion of which we print on another page.

The Chairman, in opening the discussion, congratulated Mr. Sedding on his extremely interesting and amusing paper. An onslaught had been made in it upon the doings of the Institute, and Mr. Sedding also appeared to have a somewhat low opinion of the work of the Architectural Association. According to him, the Gothic revival had been an absolute failure, and yet men like Pugin, Scott, Street, and a host of others, had done beautiful work, and erected buildings which were the admiration and study of all,—buildings which would hold their own with what had been done in times past. In a profession such as theirs it was impossible to prevent men crowding into it, and turning out abominally bad work; but the same thing must have occurred in former times. They must all, however, agree with Mr. Sedding in the lesson he deduced from the divorce which had taken place between the architect and the workman. He had referred to the many styles in which the man had to work until he was made like a machine; but there were architects, like Mr. Sedding, who instilled into the workman a love for his art. A workman who understood his work was a man before whom the architect might stand, hat in hand, and learn what he could from him. They saw much that was bad, but how was it to be met? Mr. Sedding, of course, was one of those free lances who charged in all directions with perfectly alarming viciousness; but when he had knocked all these things down, what was he going to set up in their place? What he (the Chairman) had gathered as Mr. Sedding's conclusion was, that the workman should be instructed in ornament; no one would dispute the desirability of this. A fair and honest attempt had been made of late years to afford that instruction, and the work produced, often by manufacturers and specialists, had shown great results, considering the time that had elapsed. It would hardly be practicable to have a committee which should give forth to the world what cornices and details should be used; such a task would bristle with difficulties. The look-out was not, however, so dismal as it had been pictured by Mr. Sedding. An immense stride had been made, and he believed that the solution of the question would be found in the establishment of a thorough and systematic course of study. If, in the future, they had a school with some more definite aim than hitherto, which the best men in the profession would help, some practical remedy might be found for the evils set forth by Mr. Sedding.

Mr. J. A. Gotch considered that Mr. Sedding's idea of educating the workman was an excellent one, if it could be carried out. At the same time this would pre-suppose an intimate connexion with the workman, which did not exist, and therefore it was the tendency of modern work and procedure which was at fault. They would require to have several rich clients and *carte blanche*, so that when one job was completed they could go on to another one. The system of contract was to a large extent the bane of modern architecture. Everything had to be settled before commencing, and it was only by the most dexterous manipulation that anything different could be introduced. In old times plans were drawn to a certain extent, but not particularly adhered to, and the architect had a free field. The specialist was not the product of modern days, and he did not suppose that in the Gothic times architects were acquainted with every detail of the buildings. They had only one style, of course, while the number of variations of mouldings was within one or two hundred, and used throughout the length and breadth of the land. What they had now to do was to grasp the present conditions, and do the best they could. If the public cared anything for good architecture, they would have it. But the public did not care; and until there was a change in this respect they would not have the ordinary houses and buildings of that vernacular architecture, the specimens of which, that had come down from old times, pleased them so much. He proposed a vote of thanks to Mr. Sedding.

Mr. Hilton Nash, in seconding the vote, remarked that Mr. Sedding had not dwelt upon the fact that the workman had of old as great a love of his art as the architect had. Mr. Sedding had made out the modern architect to be of chameleon-like inconstancy; but it was one of the signs of the times that everything was changing, and one must make the best of it. There were a great many noble modern buildings in the metropolis.

Mr. Woods said that Pugin had a regular school for the instruction of workmen in carving and handicraft. Mr. Butterfield, also, had exercised a considerable influence, especially in ironwork. Mr. Sedding seemed to speak with some contempt of sanitary knowledge, but it was the want of this which tended to bring architects into disrepute, and brought in the specialist.

Mr. J. M. MacLaren believed that the evil was caused by the architect standing, so to speak, at the top of the stairs, while the workman was at the bottom. Such a college as Mr. Sedding had advocated would do a good deal to redeem the profession from the slur cast upon it. Schools of art should not be confined to drawing and modelling, but might be developed into colleges in which architects and artists could work together with the workmen.

Mr. H. D. Appleton (hon. secretary) inquired whether Mr. Sedding would recommend the admission of workmen into the classes of the Association?

The vote of thanks was put and carried by acclamation.

Mr. Sedding, in replying, remarked that what had been left out of his paper had been said for him. He would only revert to the question he had asked at the commencement, "Is modern architecture, as now practised, worth living for?" He did not think he had drawn too gloomy a picture of the present condition of things. He believed in sticking to one builder, and for the last twenty years he had pursued such a course. The builder he had employed was a Cornishman, who had restored at least a score of churches, and done work for him in many counties of England and Wales. It was a great pleasure to him to shake hands with Tom, Dick, and Harry at different places, as he knew they understood their work, and would be able to carry it out well. It was impossible for the architect to supply by post details of every period and phase from the thirteenth to

the eighteenth century: hence they should revert to the good old system, as far as it could be carried out under the altered conditions,—the system in which the workman supplied certain details himself, and was able to meet any emergency which might arise. In reply to Mr. Appleton's question he would most emphatically say "Yes." He did not know much of the working of the Association, but he hoped to redeem that loss as time went on.

HEALTH EXHIBITION AWARDS.*

We this week give the remainder of the list of awards to exhibitors connected with building and sanitary matters†:—

N.B.—"G." stands for *Gold Medal*; "S."—*Silver Medal*; "B."—*Bronze Medal*; "S.C.T."—*Special Certificate of Thanks*; "D.H."—*Diploma of Honour*.

Class.	Name of Exhibitor.	Award.
30	Haibara, N. (Japan)	G.
25	Hale, R. W., & Co.	S.
27	Hale, E. H.	S.
31	Hall, John, & Co.	B.
29	Hall, Thomas	B.
21	Halliday, J.	B.
30	Hanke, Reinhold (Germany)	B.
29	Hare, John, & Co.	B.
31	Hargreaves Brothers & Co.	B.
23	Hartin's Crimson Salt Company	S.
	Haslam Foundry and Engineering Company, Limited	S.
34-39	Havre, City of (France)	D.H.
Literature	,, Bureau d'Hygiène (France)	S.C.T.
22	Hawksley, Charles	S.C.T.
22	Hayward Bros. & Eckstein	B.
25	,, ,,	B.
26	,, ,,	B.
21	Hayward, Tyler, & Co.	S.
23	,, ,,	S.
21	,, ,,	B. (4)
24	Hazard, H. H.	S.
30	Heal & Son	B.
31	Hendrie, Robert, & Co.	S.
34	Henman & Harrison	S.
42	Henrard (Belgium)	B.
24	Hepburn, R. H.	S.
26	Heron, Thomas	B.
35	Herring & Son	G.
24	,,	S.
21	,,	B.
33	,,	B.
31	Highbury Machine Company	B.
30	Hindley & Sons	S.
28	Hitchins' Fireproof Plastering Co.	G.
20	Hobbs, Hart, & Co.	S.
39	Holm, John	B.
20	Hooker & Hemings	B.
30	Horn, T. S.	B.
20	Horne, Andrew	B.
29	Horne, W. C.	S.
22	Houghton & Co.	S.
22	,, ,,	B.
22	Howie, J. & R.	B.
34	Hubert, J. (Belgium)	G.
22	Hughes & Lancaster	S.
20	Humphreys, J. C.	B.
24	Hunt, Harry	S.
21	Hygienic and Sanitary Engineering Company	B.
22	Imperial Stone Company	S.
22	,, ,,	B.
20	Improved Industrial Dwellings Co.	G.
29	Indestructible Paint Co., Limited	G.
22	Ingham, W., & Sons	S. (2)
28	,, ,,	S.
22	,, ,,	B.
26	Irish, Symons, & Co.	B.
21	Isler, C., & Co.	B.
30	Jackson & Graham	G.
28	Jackson, G., & Sons	S.
24	Jaffrey's Patent Grate Company	B.
24	Jameson's Patent Cooking Company	G.
26	,, ,, ,,	S.
	Japan, Department of Education	D.H.
39	,, Department of Gymnastics	D.H.
	,, Department of Music	D.H.
	,, Department for Imperial Household	D.H.
	,, Navy Department	D.H.
	,, Printing Bureau, Finance Department	D.H.
	,, Sanitary Bureau, Home Department	D.H.
	,, Senji Government, Woollen Factory	D.H.
	,, War Department	D.H.
29	Jeffrey & Co.	G.
30	,, ,,	G.
21	Jennings, George	G.
23	,, ,,	G. (2)
31	,, ,,	G.
21	,, ,,	S. (2)
22	,, ,,	S. (3)
23	,, ,,	S.
22	,, ,,	B.
31	Jennings, Thomas	S.
28	,, ,,	B.
26	Johnson, Charles	B.
21	Johnson, S. H., & Co.	S.
33	,, ,,	B.
28	Jones, Frederick, & Co.	G.
20	Joubert et Fils (France)	S.C.T.
21	Jowett, William M., & Co.	B.
21	Judson, Daniel, & Son	S.
30	Kashiwabara, M. (Japan)	S.
20	Kaye, Joseph, & Sons	S.
33	Keenan, Matthew	S.
24	Keith, James	G.
26	,,	S.
21	Kent, George	G.
20	,,	S.
21	,,	B.
26	,,	B.
31	Kenworthy, E. N., & Co.	S.
22	Kershaw, A. W.	B.
38	Keyser, A. (Belgium)	B.
22	King, H.	B.
32	King, P. S., & Son	S.C.T.
25	Kite, C. & Co.	G.
22	,,	S.
32	Knight, Henry, & Co.	S.C.T.
31	Knight, John, & Sons	G.
39	Knofe, Oscar	G.
30	Kutsutani, T. (Japan)	G.
20	Kwaikoshia School (Japan)	S.
40	Laisné, N. (France)	S.C.T.
42	Lakeman, James B.	G.
22	Lamb, J. M., & Co.	B.
42	,, ,,	B.
28	Langstaff, Charles, M.D.	S.
23	,, ,,	B.
21	Latham (Member of Jury) and Way	S.C.T.
21	Lawrence & Co., Limited	G.
Literature	Layet, Dr. (France)	S.C.T.
35	Lecœur, (France)	S.
34	Lecoq (France)	S.
29	Lefevre, J. (Belgium)	G.
20	Leggott, W. & R.	B.
21	Le Grand & Sutcliffe	G.
21	,, ,,	B.
Literature	Lewis, H. K.	S.C.T.
42	Libotte, N. (Belgium)	B.
32	Liège, Conseil de Salubrité publique de la Province de Liège (Belgium)	S.C.T.
42	Lindley, C. & Co.	B.
30	Linoleum Manufacturing Company, Limited	S.
29	,, ,, ,, ,,	B.
20	Liverpool, Corporation of,	D.H.
22	,, ,,	D.H.
24	Lloyd, F.	S.
20	Lombart, Jules (France)	S.
41	,, ,,	S.
21	London, Metropolitan Water Companies	D.H.
20	London, Society for Improving the Condition of the Labouring Classes	S.
	London, Society of Arts	D.H.
20	London, South London Dwellings Company	S.
22	London Sanitary Protection Association	B.
22	Lord, William, & Co.	S.
34	Lot-et-Garonne, Département du (France)	D.H.
23	Lyon, F.	B.
23	Lyon, Washington	G.
33	,, ,,	S.
21	Machinery and Hardware Company, Limited	B.
21	McCallum, J. B.	S.
36	McCarthy, Rev. E. F. M.	S.
23	McDougall Brothers	G.
31	,, ,,	B.
22	McKee, Robert Robertson	S.
26	McLennan & Owen	B.
23	Mackey, Mackey, & Co.	G.
21	Maignen, P. A.	G.
42	,, ,,	S.
31	,, ,,	B.
28	Major, H. J. & Co.	B.
23	Manchester, Corporation of	D.H.
22	Manufacturers' and Millowners' Mutual Aid Association	G.
24	Mappin & Webb	B.
42	Marihaye, Société Anonyme des Charbonnages de (Belgium)	S.
31	Marks, Henry, & Sons	S.
21	Martineau & Smith	S.
21	,, ,,	S.
45	Marten, Edward B.	B.
30	Martin & Co.	B.
22	Masson (France)	S.
34	,, ,,	S.
22	Masters, Henry	B.
	Mayed, Marquis (Japan)	S.C.T.
23	Meihe, I. R.	B.
27	Merryweather & Sons	S.C.T.
20	Metropolitan Association for Improving the Dwellings of the Industrial Classes	S.
28	Midland Rustless Iron Company	S.
22	,, ,, ,,	B.
41	Mignon & Rouart (France)	S.
41	Mignot, F. (Belgium)	B.
23	Möller, L. M. (Denmark)	S.
20	Moerath, John N.	B.
35	Monthiers (France)	S.
30	Moon, Mrs. Washington	B.
25	Moore, Josiah, & Sons	B.
23	Moule's Patent Earth Closet Co.	G.
30	Müller, H. (Austria-Hungary)	S.
26	Muller, H. L.	S.
21	Muller, J. A., C.E.	S.
24	Musgrave & Co.	G.
30	Nairn, M., & Co.	B.
30	Namikawa, S. (Japan)	B.
32	National Association for the Promotion of Social Science	D.H.
23	National Chemical Company	S.
20	National Model Dwellings Company	B.
22	Native Guano Company Limited	G.
24	Neilson, W., & Co.	S.
23	New Carbolic Sanitary Company	S.
23	Neuilly, Société de Construction des Ateliers de (France)	S.
20	,, ,,	B.
29	Neujean, A., & Delaite (Belgium)	S.
30	Newman, Alfred	B.
Designs	New York State Board of Health	D.H.
26	Nobel Brothers	G.
30	Norchi & Co. (Italy)	B.
39	Nordenfelt, T.	G.
28	Norman, R. & N.	B.
21	Normandy's Patent Marine Aërated Fresh Water Company, Limited	G.
22	North British Plumbing Company	B.
31	,, ,, ,,	B.
30	Ogura, M. (Japan) ,, ,,	B.
26	Omega Gas Light Company	B.
21	Oswald, W. R.	B.
30	Ota, M. (Japan)	G.
23	Owen, Henry, & Co.	G.
23	,, ,,	S.
22	,, ,,	B.
21	Owen, Samuel	S.
21	,, ,,	B.
31	,, ,,	B.
22	Ough, Henry	S.
23	Overbury, Henry	S.
22	Page, Edmund	B.
38	Paget, Charles E.	S.
25	Papier	B.
39	Paris, Cercle Parisien de la Ligue de l'Enseignement (France)	D.H.
32	Paris, Société de Médecine Publique et d'Hygiène Professionnelle (France)	D.H.
34	Paris, Société des Crèches (France)	D.H.
34	Paris, Société des Écoles Enfantines (France)	D.H.
40	Paris, Société Protectrice de l'Enfance (France)	D.H.
39	Paris, Union Francaise de la Jeunesse (France)	S.C.T.
21	Paris, Ville de (France)	D.H.
27	,, ,,	D.H.
34	,, ,,	D.H.
33	Paris, ,, Ville de, Prefecture of the Seine (France)	D.H.
23	Parker, John	S.
30	Parker, Smith, & Parker	B.
26	Parkinson, W., & Co.	G.
21	,, ,,	S.
28	Patent Durable Roofing Felt Co.	B.
31	Patent Steam Washer and Laundry Company, Limited	B.
28	Patent Victoria Stone Company	S.
22	,, ,, ,,	B.
31	Paton & Charles	B.
20	Pearse, Robert, & Co.	S.
31	Pearson & Co.	B.
26	Peigniet-Changeur et Cie (France)	B.
20	Penny, William John	B.
31	Perkins, B., & Son	S.
39	Petit et Dumontier (France)	B.
31	Petitjean Fils (France)	B.
24	Petter, James	S.
20	Pfeiffer, Carl (United States of America)	S.C.T.
22	Phillips, W., & Son	B.
39	Biggott Brothers	S.
30	Piqué et Dessert (France)	S.
26	Plunkett, the Hon. John W.	B.
21	Pocock, Alfred Wilmer	S.
20	,, ,,	B.
31	Podger, H., & Sons	B.
21	Porter, John H.	G.
33	,, ,,	S.
24	Potter, T. G.	S.
24	Potter, Thomas, & Sons	S.
26	Price's Patent Candle Company, Limited	G.
33	,, ,, ,,	G.
31	,, ,, ,,	S.
21	Pringle, Robert, M.D.	S.
30	Proctor & Co. (India)	S.
35	Proust (France)	S.
28	Pulham & Son	B.
20	Quayle, D. F.	B.
34	Quétin, E. (Belgium)	S.
21	Quirk, Barton, & Co.	G.
28	,, ,,	S.
20	Radclyffe, Dick, & Co.	B.
21	Ramsey, William	S.
35	Reck, A. B. (Denmark)	G.
24	,, ,,	S.
28	Reed Lathing Company	B.
21	Reynolds, F. W., & Co.	B.
32	"Revue d'Hygiène et de Police Sanitaire," Proprietors of (France)	S.C.T.
31	Rimmel, E.	G.
23	,,	S.
27	Robert (France)	B.
21	Roberts, Charles Gay	S.
21	Roberts, Thomas	B.
20	Robertshaw, James	B.
21	,, ,,	B. (2)
23	Rogiers & Mothes (France)	S.
21	Rome, City of (Italy)	D.H.
24	,, ,,	D.H.
24	Ronvaux, Dr. (Belgium)	B.
27	Rose, William, & Co.	S.
30	Rosel, F. R. (Belgium)	S.
45	Rosewarne, W.	B.
20	Ross, John	B.
39	Roth, Dr.	G.
29	Rottmann, Strome, & Co.	G.
30	,, ,,	B.
34	Rouen (City of France)	D.H.
31	Rougeot, Dr. (France)	B.
23	Rousseau (Belgium)	B.
31	Rowe & Co.	G.
21	Royle, John T.	S. (2)
21	,, ,,	B. (2)
31	Rudolfsthaler Graphite Works (Austrian-Hungary)	B.
26	Fage, Frederick	B.
23	St. Helen's, Mayor and Corporation of	D.H.
26	Sale, Frank T.	S.
34	Salleron (France)	S.
31	Salmond, David	G.
23	Sanitary Appliance Company	G.
20	,, ,, ,,	B.
Literature	"Sanitary Engineer," New York United States of America	S.C.T.
32	Sanitary Institute	S.C.T.
23	Sanitary Paper Company	B.
Literature	"Sanitary Record," Proprietors of	S.C.T.
22	Sanitary Reform and Engineering Company	B.
31	Sanitary Company, Limited	B.
29	Scarborough Mosaic Floor Cloth Co.	S.
24	Schaeffer, F. (Belgium)	G.
35	,, ,,	G.
42	Schaffer & Budenberg	S.
29	Scollick, A. J., & Co.	B.
21	,, ,,	B.
29	Scott, Cuthbertson, & Co.	F.
33	Seagrave, G.	S.
23	Sellers, John	B.
34	Serrure, E. C. (Belgium)	S.
21	Shanks & Co.	G.
31	,, ,,	G.
21	Sharp & Co.	S.
22	,, ,,	B.

* See p. 640, *ante*.
† For description of classes see last week's number.

Class.	Name of Exhibitor.	Award.
21	Sharp & Co.	B (2)
22	" "	B.
25	" "	B.
22	Sharp, Henry Jones, & Co.	S.
22	" "	B.
Literature	Shaw & Sons	S.C.T.
23	Shilton, A. J.	B.
30	Shimidzu, K. (Japan)	B.
30	Shippo-Kwaisho Company (Japan)	B
20	Siam, Government of	B.
29	Silicate and Zopissa Composition and Granitic Paint Company	S.
21	Silicated Carbon Filter Company	S.
33	Simmons & Tullidge	G.
21	Simpson & Co.	G.
33	Simpson, James, & Co.	S.
27	Sinclair, James, 104, Leadenhall-street, E.C.	S.
22	Smeaton, John	S.
22	"	B. (2)
31	"	B.
30	Smee, William A.	S.
20	Smith & Turner	S.
24	Smiths, James	S.
39	Spencer, George	S.
21	Spencer, J.	G.
27	Spong & Co.	B.
21	Spongy Iron Domestic Filter Co.	S.
23	Spratt's Patent	B.
43	Squire & Sons	B.
31	Star Brush Company, Limited	B.
30	Starkie, Gardner, & Co.	G.
24	Steel & Garland	G.
24	" "	S.
30	" "	B.
30	Steele & Wood	B.
39	Stempel, Adolf A.	S.
31	Stephens & Woodman	B.
24	Stephenson, W. H., M.D.	S.
22	Stidder, J. G., & Co	G.
21	" "	S.
23	" "	S.
21	" "	B. (4)
22	" "	B.
23	" "	B. (2)
22	Stiff, James, & Sons	S. (2)
28	" "	S.
33	Stirrat, B. B.	B.
24	Stobbs, W.	B.
20	Stones, John	G.
33	Stopes, H., & Co.	S.
25	Stott, James, & Co.	B.
26	Sugg, W., & Co., Limited	G.
24	" "	S.
27	Swanton, W. E.	B.
21	Syer, Milton	B.
27	Tabouet et Cie. (France)	S.
25	Thomasson & Kay	B.
31	Thompson, H. A., & Son	B.
29	Thompson, H., & Co.	G.
24	Thompson, Henry (Canonbury)	G.
25	Thompson, H., Manchester	B.
28	Thomson & Co.	B.
41	Thwaite, B. H.	B.
31	Tidman & Son	B.
31	Tilbury, W. R., & Co.	B.
30	Tokugawa, Marquis (Japan)	S.C.T.
20	Tollet, Société Nouvelle de Construction, Système Tollet (France)	S.
30	Tooth & Ault	S.
28	Towers & Williamson	S.
20	Toyo Company (Japan)	B.
35	Trélat, Émile (France)	G.
29	Treloar & Sons	B.
25	Treutler & Schwartz (Germany)	G.
30	Tubouchi, A. B. Ya (Japan)	G.
20	Tucker, J. D.	B.
21	Tylor, J., & Sons	G. (2)
31	" "	G.
21	" "	S.
23	" "	S.
21	" "	B. (7)
22	" "	B. (2)
23	" "	B. (2)
21	Ullathorne, Granville Sharp	S.
29	United Asbestos Co., Limited	S.
30	" " "	S.
21	Universal Filter Company	B.
28	Val de Travers Asphalte Paving Company, Limited	B.
32	Valerius, H. (Belgium)	S.C.T.
27	Vallez, L. (Belgium)	B.
24	Van Hoecke T. (Belgium)	S.
21	Van Praag, Alexander, & Son	S.
35	Vaudremer (France)	G.
13	Vaughan, Lukey, & Co.	B.
20	Vaux & Radford (U.S.A.)	S.C.T.
29	Verbeucken, H. (Belgium)	S.
30	Vernon's Patent China and Glass Company, Limited	B.
28	Vigers Brothers	B.
31	Von Kaiserstein, Baron (Austria-Hungary)	B.
22	Wadsworth, Henry, & Son	G.
30	Wahliss, Ernest (Austria-Hungary)	S.
21	Walker, William	B.
20	Wall, Joseph	B.
22	Waller, George, & Co.	G.
22	"	B.
31	Waller, Thomas"	B.
30	Walton, F., & Co.	G.
Literature	Ward, Lock, & Tyler	S.C.T.
30	Wardle & Co.	G.
20	Waring, Colonel George E. (United States of America)	S.C.T.
21	Warner, John, & Sons	G.
21	" " "	S. (2)
23	" " "	S.
21	" " "	B.
23	" " "	B. (2)
30	Warner & Ramm	G.
42	Warwick, James	S.
23	Watson, W. W.	B.
29	Watts, George	B.
33	Waygood, R., & Co.	S.
20	Weber, C. F. (Germany)	S.
20	Webster, James, A.R.I.B.A.	B.
20	Webster's Patent Aluminium Metal Company	S.
21	" " "	S.
26	" " "	B.
35	Weeks, J., & Co.	G.
22	West Central Sanitary Engineering Company	G.
21	" " "	S. (3)
23	" " "	S.
31	" " "	S.
23	" " "	B. (2)
30	Wetherilt, A. & J.	B.
31	Whalley, Smith, & Paget	B.
28	White, William, Abergavenny	G.
38	White, William, F.S.A., 30A, Wimpole-street	S.
20	Wilcock & Co.	G.
30	" "	G.
20	" "	S.
22	" "	S.
28	Wilkes Metallic Flooring and Eureka Concrete Company	G.
20	Willesden Waterproof Paper and Canvas Works, Limited	G.
29	" " "	G.
30	" " "	S.
26	Williams & Bach	B.
24	Wilson Engineering Company	S.
30	Woerffel, C. F. (Russia)	S.
29	Woollams, Williams & Company	G.
31	Woolley, James, Son, & Co.	S.
28	Wortley Fire Clay Company	B.
24	Wright, John, & Co.	B.
30	Yamanoto, S. (Japan)	G.
29	Yates & Co.	G.
30	" "	S.
30	Yates, Haywood, & Co.	S.
24	" "	B.
20	Young & Hall	B.
28	Zimmerman & Co.	B.

BUILDERS' BENEVOLENT INSTITUTION.

ANNUAL DINNER.

THE thirty-seventh anniversary dinner in aid of the funds of this Institution was held (as we briefly announced in our last) on the 6th inst., at the Freemasons' Tavern. Mr. Stanley G. Bird, the President, occupied the chair, being supported by Mr. Ewan Christian (President of the Royal Institute of British Architects), Mr. George Plucknett, J.P., and other friends of the Institution.

The usual loyal and patriotic toasts were given by the Chairman, Major Brutton responding for the "Army and Navy," and Major Stedall for the "Reserve Forces."

The Chairman, in proposing the toast of the evening, "Success to the Builders' Benevolent Institution," said he remembered the birth of the Institution in 1847. His father was the first treasurer, and the Institution began, like most things, in a small way. A few good and earnest men met at a small public-house in the neighbourhood of Marylebone-road, and the Institution was the outcome of their discussions. After a time, Mr. Alderman Cubitt and Mr. Alderman Lawrence took an interest in it, and from that period its success was assured. If such worthy men amongst its founders as Mr. Cozens and Mr. Joseph Bird could see the great work now being done by the Institution, they would be both surprised and delighted. Since its formation the Institution had been managed by a band of earnest workers, and in looking through the lists he saw many familiar names, such as Mr. Stirling, Mr. Bolding, Mr. Bussell, and Mr. Nicholson. He mentioned these gentlemen because they were builders' merchants; and perhaps it was almost a reproach to the builders themselves that, belonging as they did to a trade which was the most important in the world, they should depend upon the support of merchants for aiding the Institution. But if this was a reproach to the builders, it was the greater honour to the merchants, who deserved earnest thanks for their great help and support. It was surprising that more builders did not belong to the Institution, because it might be termed an insurance society for them. One of the most recent of their candidates, Mrs. Austin, had been elected by her own votes, she and her husband having been liberal donors to the Institution. It had been stated that some of the candidates for election were not builders of the style or class they anticipated. He did not know whether people were desirous of seeing their friends becoming candidates for pensions, but, for his own part, he was always sorry to see even any name he knew in the list of applicants. At the present time there were twenty-nine male and twenty-nine female pensioners on the funds. The expenditure was about 2,400*l.* per annum, each male pensioner receiving 37*l.* and each female 27*l.* a year. The Institution had some 22,000*l.* invested in Consols; and if the conversion scheme were carried out they would lose about 60*l.* yearly in the shape of interest. To enable the treasurer to make up any possible loss and something besides, he asked them to contribute liberally to the funds of the Institution.

Mr. Howard Colls, in proposing the "Chairman and President," said that Mr. Stanley Bird had perhaps done more for the building trade of London than any other man of the time.

The Chairman having briefly replied,

Mr. Alfred Smith proposed "The Vice-Presidents and Trustees," coupling the toast with the name of Mr. Thomas F. Rider, who made a humorous speech in reply.

The Chairman proposed, "The Treasurer" (Mr. George Plucknett, J.P.), who, he said, was ever ready with advice and kindly help to advance the objects of the Institution.

Mr. Plucknett briefly responded, quoting words of a former friend of the Institution, Mr. Alderman Cubitt, as to the duty of builders, as of other tradesmen, to support the charitable institutions connected with their trade.

The Chairman next gave "The Architects and Surveyors." As they were favoured with the presence of the President of the Royal Institute of British Architects, he was sure they would join with him in appreciating most highly the kindness of Mr. Ewan Christian in coming to meet them. They might look upon it as a happy thing for the trade at the present time that Mr. Christian was at the head of the Institute, for this year the provincial masters had commenced negotiations to endeavour to bring about a better state of things with regard to the form of contract and tender. He would not enter into these matters, but it was a happy thing that Mr. Christian occupied the post, as all knew the high judicial character of his mind, and his great kindliness of disposition. Therefore, when the builders came before the architects they would be met in a way which, he believed, would bring about a fair settlement of the matters they had so much at heart. As to the surveyors he (the Chairman) thought they ought not to be bracketed with the architects, for they were a sufficiently important body to stand alone, and he would be glad when the toasts were given separately. He coupled with that part of the toast the name of Mr. Franklin.

Mr. Ewan Christian, in responding for "The Architects," remarked that they and the builders were brothers in one sense, at any rate, being all engaged in one of the most important industries of the world. The chairman had told them that the builders employed a larger number of men than any other trade did; and in proportion to the number of men employed, so were the risks. Sir William Tite was never tired of saying how great were the risks of the architect, and that his profession was a most hazardous one. How much more did this apply to the builder, who required to be Argus-eyed to see all that was going on in the building he was erecting. Builders would likewise require to be endowed with an enormous amount of placidity in dealing with the highly-extolled British workman. Not that he had not the highest respect for a good workman. There were black sheep in every business. No set of tradesmen were so dependent on their men as were builders; for their good name could be readily taken away by the actions of their workmen. Most of them had read "Adam Bede." He (Mr. Christian) knew the hero of that tale, who was a carpenter by trade, named Evans, and he was so highly respected and sought after that people who had churches or houses to build would wait for years in order that he might do the work. Evans informed him that he always told his foremen on commencing work:—"I cannot afford to lose at both ends. If I lose money I may replace it, but I cannot afford to lose credit; and upon that principle you must carry out your work for me." Architects were sometimes spoken of as a sort of policemen; while others thought the value of the architect was to get the most out of a builder. This had never been his principle. The architect should never be the mere tool of his employer, but rather an arbitrator between builder and client.

Mr. Franklin replied for "The Surveyors." If all architects were like Mr. Christian there would be little reason for separating the two professions. The time, however, was rapidly approaching when the necessities of the case would produce the separation which builders demanded and the interest of the public required.

Mr. R. Freeman gave the concluding toast ("The Committee and Stewards"), which was responded to by Mr. Phillips.

In the course of the evening subscriptions and donations amounting to 665*l.* 14*s.* were announced.

Illustrations.

THE ANCIENT PALACE OF WESTMINSTER.

IT is not our intention to present our readers with a succinct historical sketch of the ancient palace of our kings at Westminster. This has been so carefully done by Smith & Brayley that, all we could do would be simply to repeat the information to be found in their volumes; but what we propose is to indicate as nearly as possible the localities of the various buildings and apartments mentioned in ancient documents. Some of these can be discovered, but the situation of others is more or less conjectural. The origin of the Palace of Westminster cannot be clearly ascertained, and the first authentic notices of this vast historical edifice refer to the time of Edward the Confessor, who certainly made this his principal residence, and either built or rebuilt the palace, which was both historically and structurally connected with the abbey. It is presumed that the Confessor's buildings surrounded the open space known as "Old Palace-yard" on the south, east, and west sides, and it is not improbable that the old building called the "Jewel Tower" or "Parliament Office" may have formed the most western portion of his palace. There were also portions of the substructure of his buildings existing underneath the old House of Lords when that building was pulled down in 1832. This cellar gained great notoriety from its being the scene of that idiotic conspiracy known as the "Gunpowder treason."

William I. is said to have added the building known as the "White Hall," or "Court of Requests," and William Rufus erected Westminster Hall and other buildings to the north of the more ancient palace. Henry III., however, rebuilt nearly the whole of the Confessor's work, and even down to our own time, the "Prince's Chamber," the Parliament Chamber (House of Lords), the King's or Painted Chamber, were of his date. In addition to these he erected the Chapel of St. Stephen: the Pilgrimage Church called "St. Mary Le Pewe:" the oratories of the king and queen: the Antioch Chamber: and many other buildings, which were, however, all rebuilt at a later period.

In the year 1298 occurred one of those disastrous fires which have no less than five times reduced the greater portion of the old palace to ruins.

The Chapel of St. Stephen, which had been only just completed and decorated in a most costly manner, was entirely destroyed. Edward I. commenced its rebuilding upon a far more magnificent scale. Some writers have ascribed to Edward I. the credit of having erected this beautiful structure, and others have ascribed it to Edward III. Now the documentary evidence, which is very distinct upon this point, shows that Edward I. certainly *commenced* the chapel, and the works were continued during the unfortunate reign of his worthless successor, but so little progress had been made that in the seventeenth and eighteenth years of Edward III. the crypt was still in an unfinished condition, as we find accounts paid for paving and otherwise completing "the Lower Chapel." The whole of the upper chapel was certainly the work of Edward III., and the accounts for its building and decoration are still preserved, and form the most interesting series of documents of the kind in existence. Everything, including the costly pictures painted upon the walls, was paid for by day wages, the only exception being some of the statues. The names of the master masons, the painters, the stained-glass makers, and even the workmen, are given. It is difficult to say who is to be accredited with the design of this exquisite chapel, but possibly it may be ascribed to a certain "Master Thomas of Canterbury," who appears for many years to have been master mason, and who received far larger wages than any one else mentioned in the documents, even more than Hugh of St. Alban's, who was the principal painter.

The Court of Requests was almost rebuilt by Edward II., and an open-timber roof added, the walls being cramped with iron to support it. Possibly, also, the Exchequer Chamber, and its attendant apartments, were reconstructed at about this time, as also the "Queen's Hall," the "Gaol," the "Nursery Chamber," the king's and queen's private oratories, and other buildings. Many of these, however, were greatly altered in the reign of Richard II., Henry VI., and Edward IV.

Richard II., as is well known, nearly rebuilt Westminster Hall, but more of the ancient Norman edifice of Rufus was allowed to remain than is usually supposed. In fact, what Richard did was simply to heighten the walls, add new windows, and the magnificent open roof. Unfortunately Smirke's restoration of the Hall in 1825-30 obliterated nearly every vestige of the old Norman work, and succeeded in robbing Richard II.'s work of much of its interest; and even Sir Charles Barry's addition to the south end of the Hall, though very fine in itself, has rather destroyed the character of this noble apartment. Before Smirke's restoration several of the old Norman windows remained, and the Norman string below the windows could be traced in many places. Until the removal of the Law Courts a year or two back not a single particle of the Norman building was visible; but that desirable work of destruction has brought to light much of the old Norman ashlar work, which we sincerely trust will be retained and preserved.

To the west of Westminster Hall were formerly a number of ancient buildings forming, together with the side of the Hall, a series of irregular open courts. The most important of these was the Exchequer Chamber, which was frequently rebuilt. We find it mentioned in Henry III.'s time. It stood to the south-west of the Hall. To the north of this was the "King's Fishmongery," probably the place where fish was dried and salted for the use of the palace; and still further to the north, on a line with Henry VII.'s Chapel, were three chambers, called respectively "Heaven," "Hell," and "Purgatory." The origin of these names, as applied to these chambers, it is impossible to ascertain. It is, however, not improbable that they may have been derived from some pictures or hangings upon their walls, such representations being not uncommon in the Middle Ages. It is somewhat remarkable that the late buildings of the Court of Chancery occupied their site, and were it not that the name of the first apartment, "Heaven," was inappropriate, one might be led to infer that the two later names were given in anticipation.

It is evident that the west side of Westminster Hall was never exposed to view, except from some small courtyards, where a great flying buttress or two grouped picturesquely with the surrounding buildings, and we cannot help regarding the throwing open to view of this long flank of the Hall as a decided mistake. It is certain always to look too low for its length, and as it was never intended to be seen at a distance, it cannot be regarded as a restoration of any ancient design or idea. Even now we would suggest the erection of a row of buildings to the west, between the Hall and St. Margaret-street, leaving a long narrow court in their rear, from which the walls and flying buttresses might be seen in sharp perspective, which was evidently the intention of the old builders.

To the south of Westminster Hall was and still is New Palace-yard. In olden times it was a vast irregular quadrangle, at first probably only surrounded on the south and west sides by high walls. As early, however, as the reign of Edward I. a lofty clock-tower and other buildings were erected on the south and east sides, and Richard III. built a magnificent and very lofty gateway to the west. The clock-tower and the gateway were both destroyed in 1706–1707. During the fifteenth and sixteenth centuries numerous houses, inns, and other buildings were intruded upon Old Palace-yard, and in the centre a great conduit was erected. The west end or side of New Palace-yard was formed by a series of irregular buildings, amongst which was the "Star Chamber," which gained such a discreditable notoriety in later times. It appears to have been either built or rebuilt in the reign of Edward IV. An ancient water-gate led from this end of New Palace-yard to the Thames; it is said to have dated from the reign of Henry III. All these buildings, however, were pulled down in 1836, and long before that time they had been so transformed by various alterations that it is impossible to speak with certainty as to their various dates.

It will be noticed at once, upon looking at our illustration, that both Old and New Palace yards were regularly enclosed courts, surrounded by buildings and enclosed by gates, so that no street passed through Westminster, and in fact, King-street,—then the most important thoroughfare in the neighbourhood,—came to an abrupt termination with three gates, at or near to its northern end; that in the centre leading to the abbey precincts and the greater Sanctuary, that to the north leading to the "lesser Sanctuary," and that to the south into New Palace-yard. Old and New Palace yards were connected by a narrow lane, with gates at either end, called St. Margaret's-lane.

Numerous old apartments and buildings connected with the Palace are mentioned in ancient documents, amongst others "Antioch Chamber,"—why so called it is impossible to ascertain. The name, however, is evidently in some way associated with the "Jerusalem Chamber" and "Jericho Parlour" of the neighbouring abbey, probably all these names refer to the Crusades, and pictures of their exploits at the places named may have adorned their walls and originated the names which appear to us so singular.

The "Cage-room" is another ancient apartment mentioned. This is supposed to have been an aviary, and certainly overlooked the river; as a story is told of a parrot falling into the water, when, in imitation of some impatient courtier from whom he had heard the expression, cried out: "A boat! a boat for twenty pounds!" A waterman hearing this picked up the bird and asked for the reward which it had offered. The matter was referred to the King (Henry VII.), who insisted upon the parrot being brought forward as a witness. The parrot had, however, learned a new saying in the meantime, and, when brought forward, to the intense disgust of the waterman, he called out: "Give the knave a groat!"

The offices of the palace, chandlery, bakery, slaughter-house, &c., appear to have stood to the south of the inner court of the palace, parallel with the Prince's Chamber; and the buildings called the constabulary formed the south side of the Old Palace-yard, with a gateway in their midst leading to the "King's Bridge," and Millbank. The "King's Garden," the tower near the "King's Garden," the "Queen's Hall," the "Maydenes' Hall," &c., are also apartments mentioned, but their site can only be conjectured. All that is known is that they were to the south of the Painted Chamber.

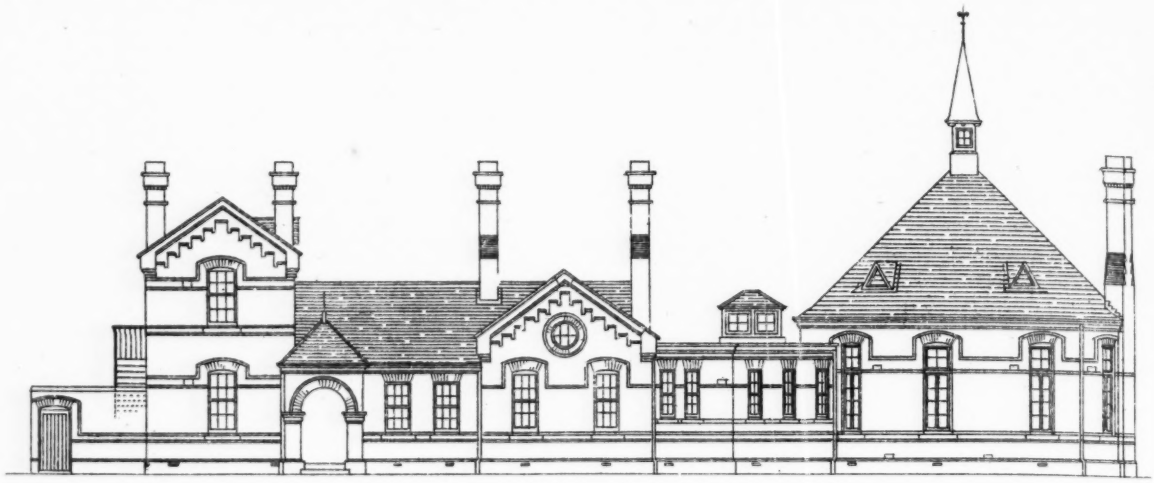
The Pilgrimage Church of "St. Mary-le-Pewe," or "Our Lady of the Pewe," stood to the south of St. Stephen's Chapel, between it and the Painted Chamber, and approached from either the one or the other. In fact, it is evident from descriptions of certain court ceremonials that in passing from the Painted Chamber to St. Stephen's Chapel the way was through the chapel of "Our Lady of the Pewe." A doorway which was discovered in the easternmost bay of St. Stephen's Chapel, was undoubtedly the way of communication between the two. The Chapel of Our Lady of the Pewe must either have been cruciform in plan, or have possessed projecting side chapels, as it contained three altars, which could not otherwise be accounted for in so small a building. The dedication is very peculiar. Some people have supposed that *Le Pewe* is the French "*le peu*" (the little); others that it is derived from "*puit*," "the well," from some spring or well having existed upon its site. We should, however, think that it was probably derived from La Puy in France, where there exists a pilgrimage church of Notre Dame de la Puy. That our Norman sovereigns should have established this devotion in England is by no means improbable.

The buildings of the collegiate establishment of St. Stephen stood to the north of the chapel, and the beautiful old cloisters and double oratory are (with the exception of Westminster Hall) the only portions of the grand old historical palace now existing. They were the last works executed before Henry VIII. transferred himself and his court to his new palace of Whitehall, and were erected by the last dean, Dr. John Chambers, in 1526.

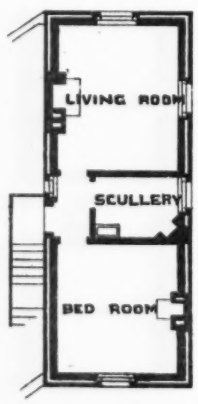
Magnificent as our modern palace of Westminster undoubtedly is, every one must regret the loss of such buildings as St. Stephen's Chapel, the Painted Chamber, the Prince's Chamber, and all the historical associations which clung to the ancient Palace of Westminster.

H. W. BREWER.

For key to, and list of the buildings illustrated by, the drawing, see p. 673.

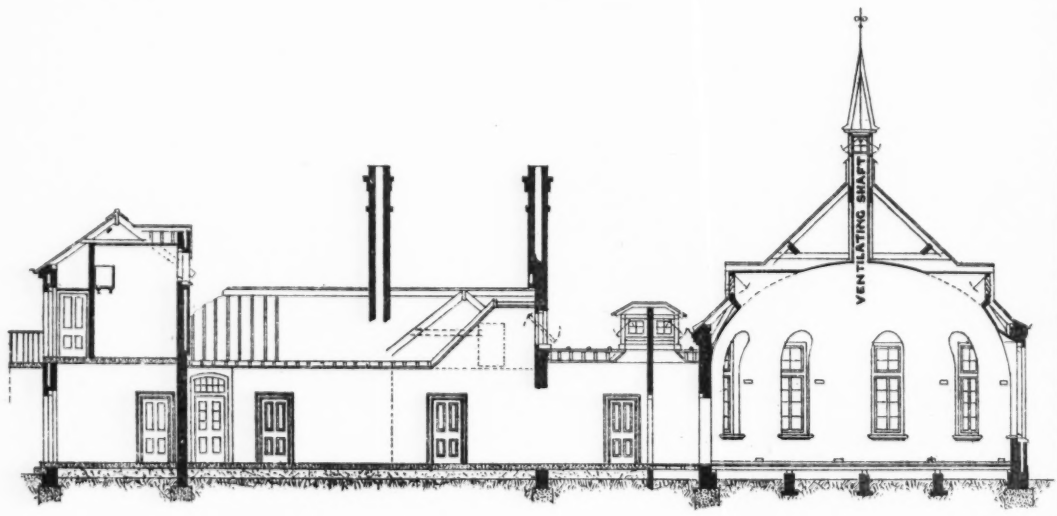


FRONT ELEVATION.



ASSISTANT STEWARD'S

Q^rs OVER KITCHEN &c.



LONGITUDINAL SECTION.

GROUND PLAN.

REFERENCE.

L.V. L.V. LOUVRED VENTILATORS LARGE.

l.v. l.v. D^o D^o SMALL.

V.V. VENTILATORS UNDER BEDS.

I. I. FRESH-AIR INLETS TO FIREPLACES.

Y.Y. YARD TRAPS.

G.D. G.D. GLASS DOORS.

B.S. { SINK FOR PORTABLE BATH.

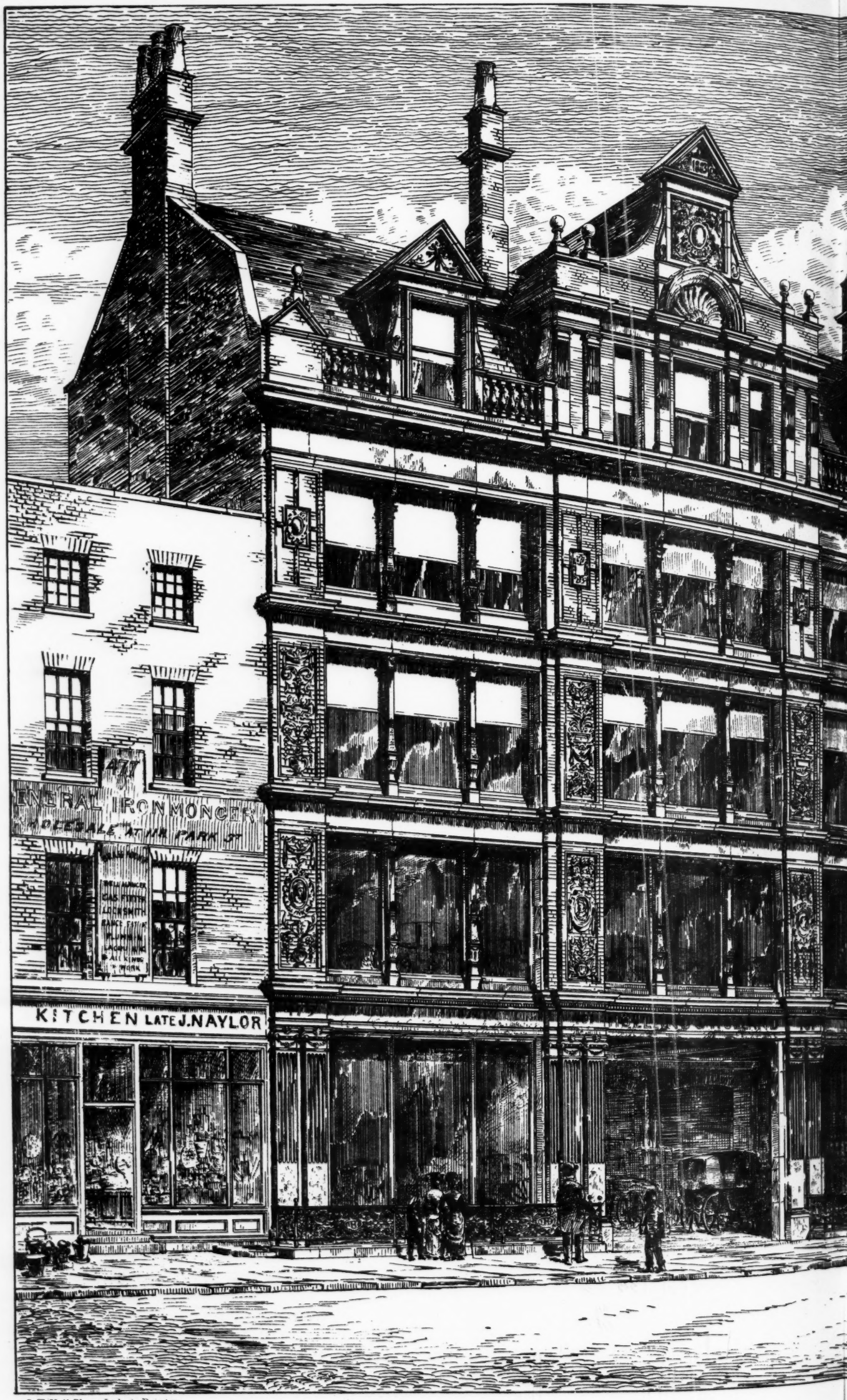
SCALE

10 5 0 10 2 30 40 50 feet.

Wyman & Sons, Photo-Litho. 74 Queen St London, W.C.

HOSPITAL WITH CIRCULAR WARD: CAVALRY BARRACKS, SEAFORTH, LIVERPOOL.

Designed by Major-General Sir Andrew Clarke, K.C.M.G., C.B., C.I.E., R.E.

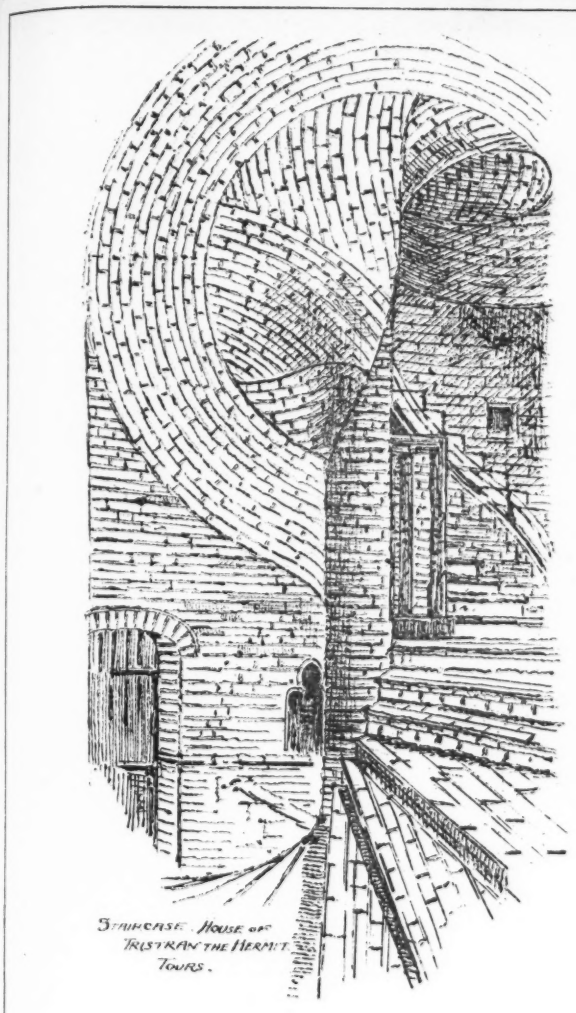


C. F. Kell Photo-Lith. & Printer.

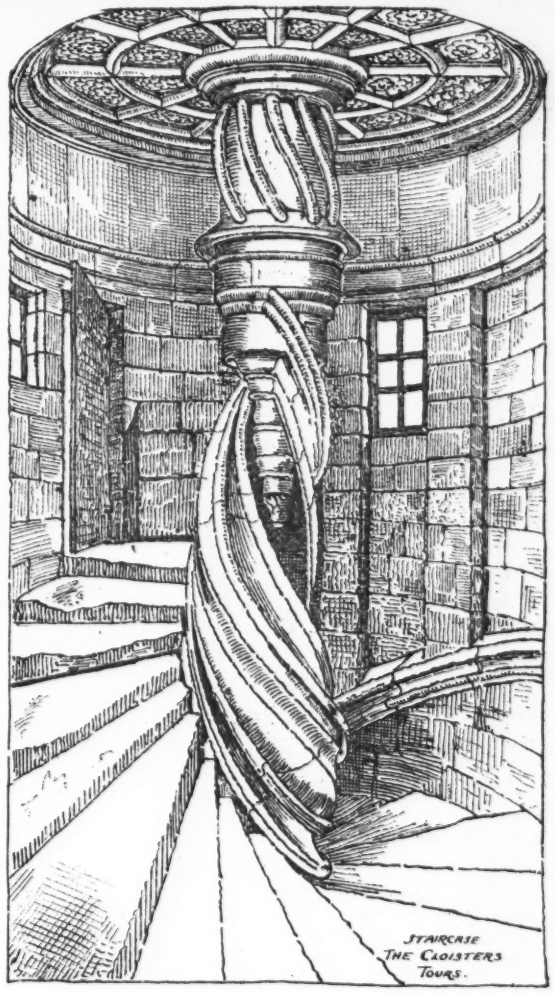
BUSINESS PREMISES, OXFORD STREET, W

ET, W. MR. CHATFEILD CLARKE, F.R.I.B.A., ARCHITECT.

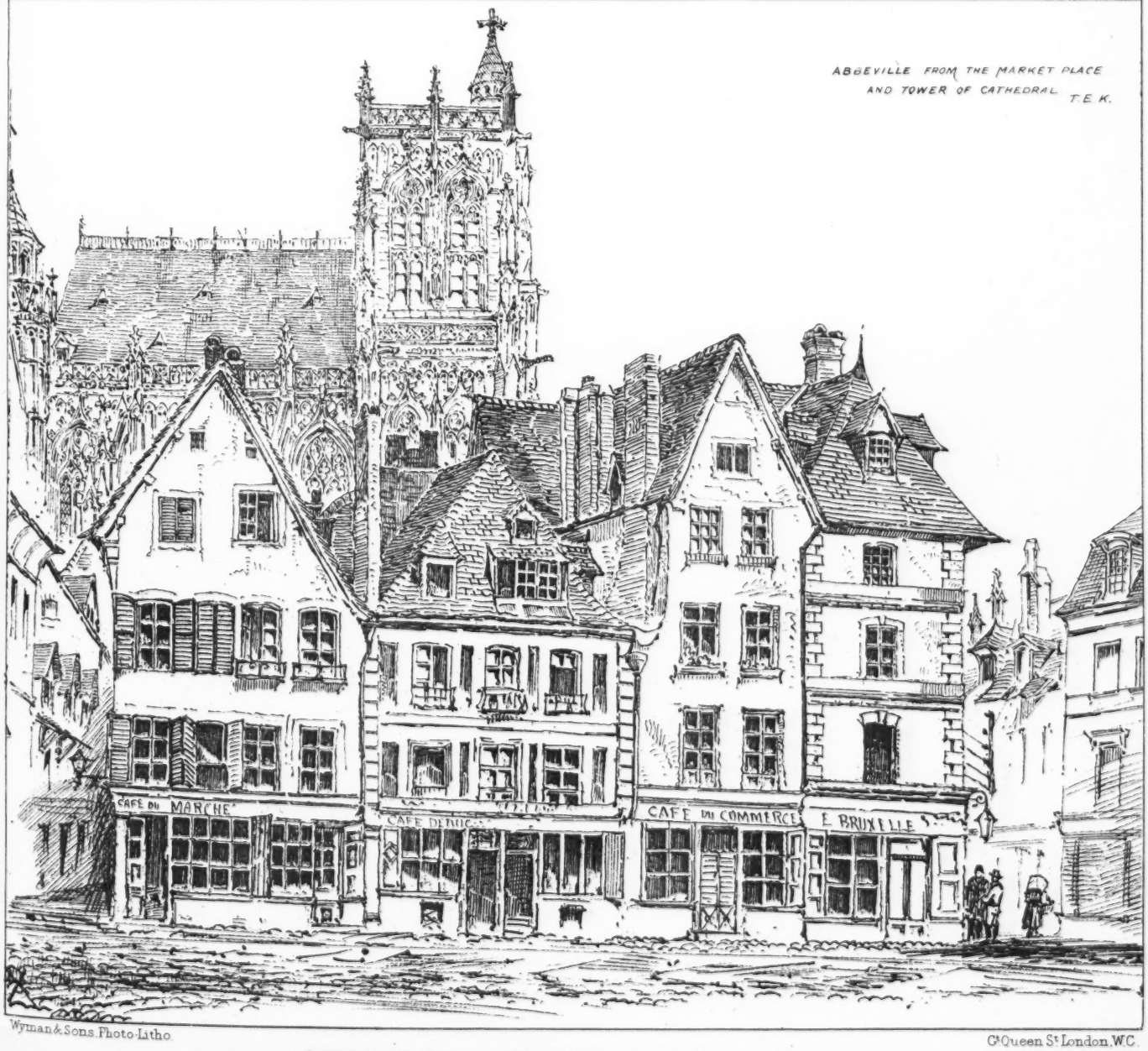
8 Castle St Holborn. London. E.C.



STAIRCASE HOUSE OF TRISTRAN THE HERMIT TOURS.



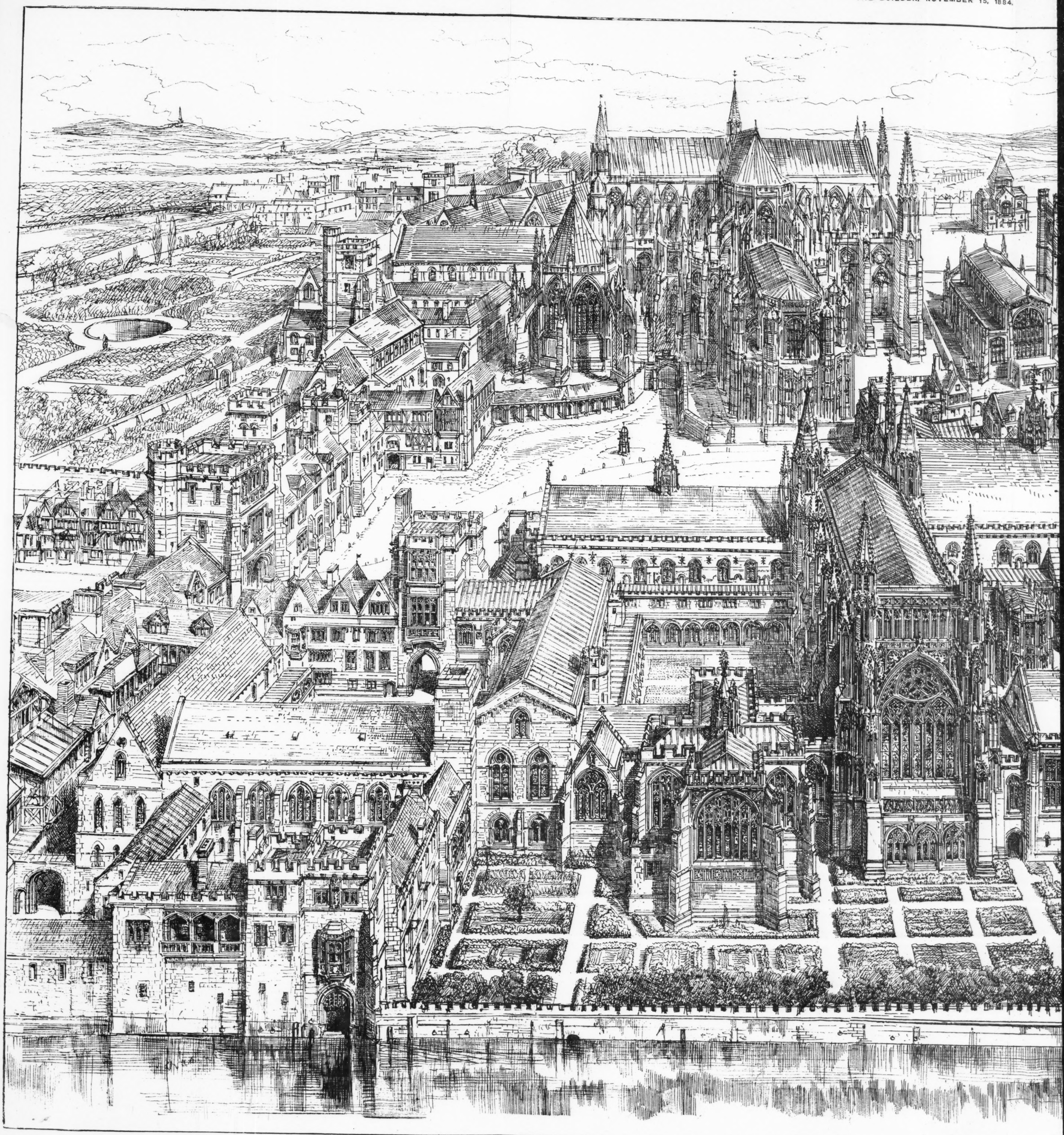
STAIRCASE THE CLOISTERS TOURS.



ABBEVILLE FROM THE MARKET PLACE AND TOWER OF CATHEDRAL T.E.K.

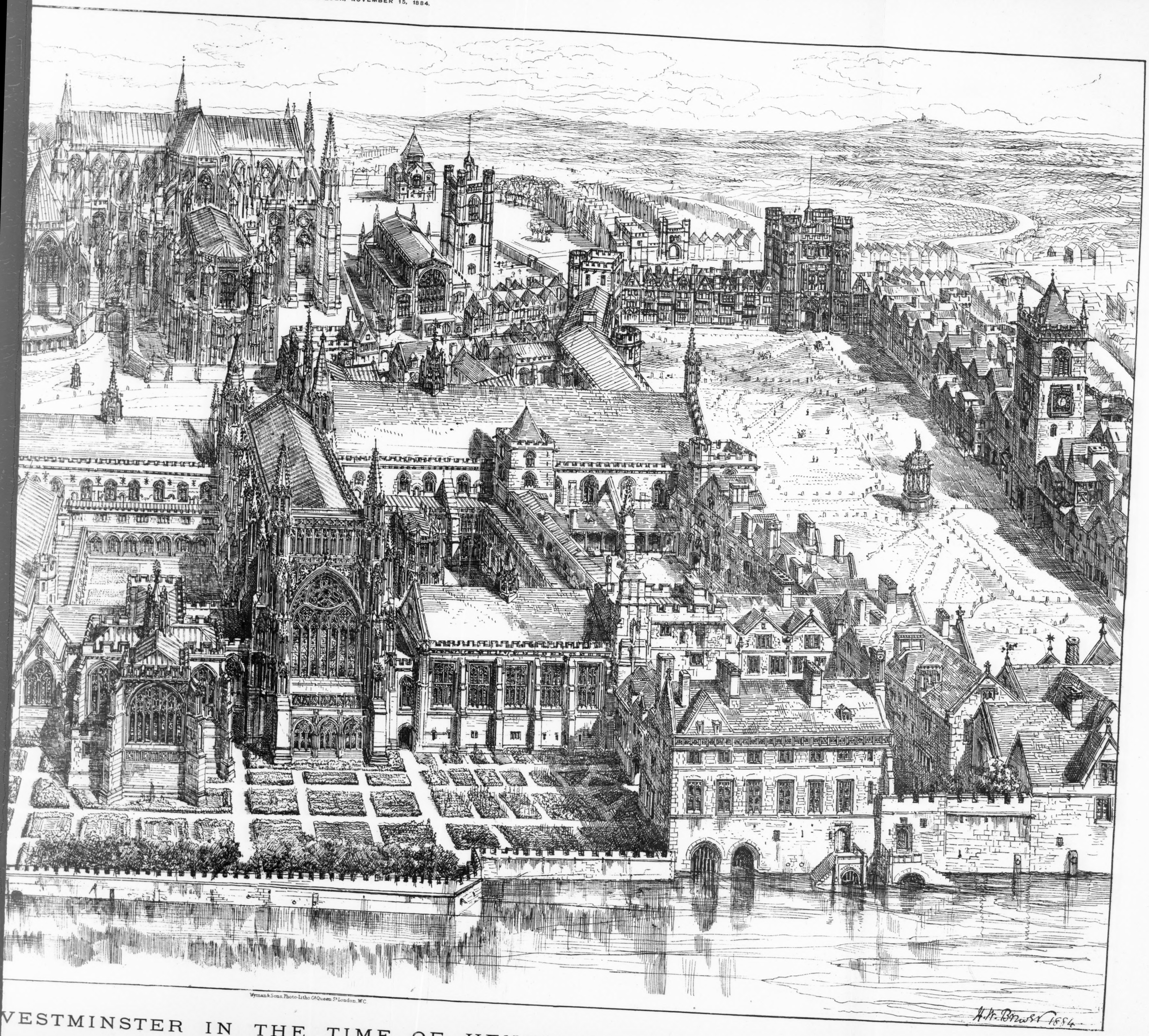
Wyman & Sons, Photo-Litho. C^t Queen S^t London, W.C.

SKETCHES BY A DISTRICT SURVEYOR. No. 5.



Wyman & Sons, Photo-Litho, 6 Queen St London, W.C.

WESTMINSTER IN THE TIME OF



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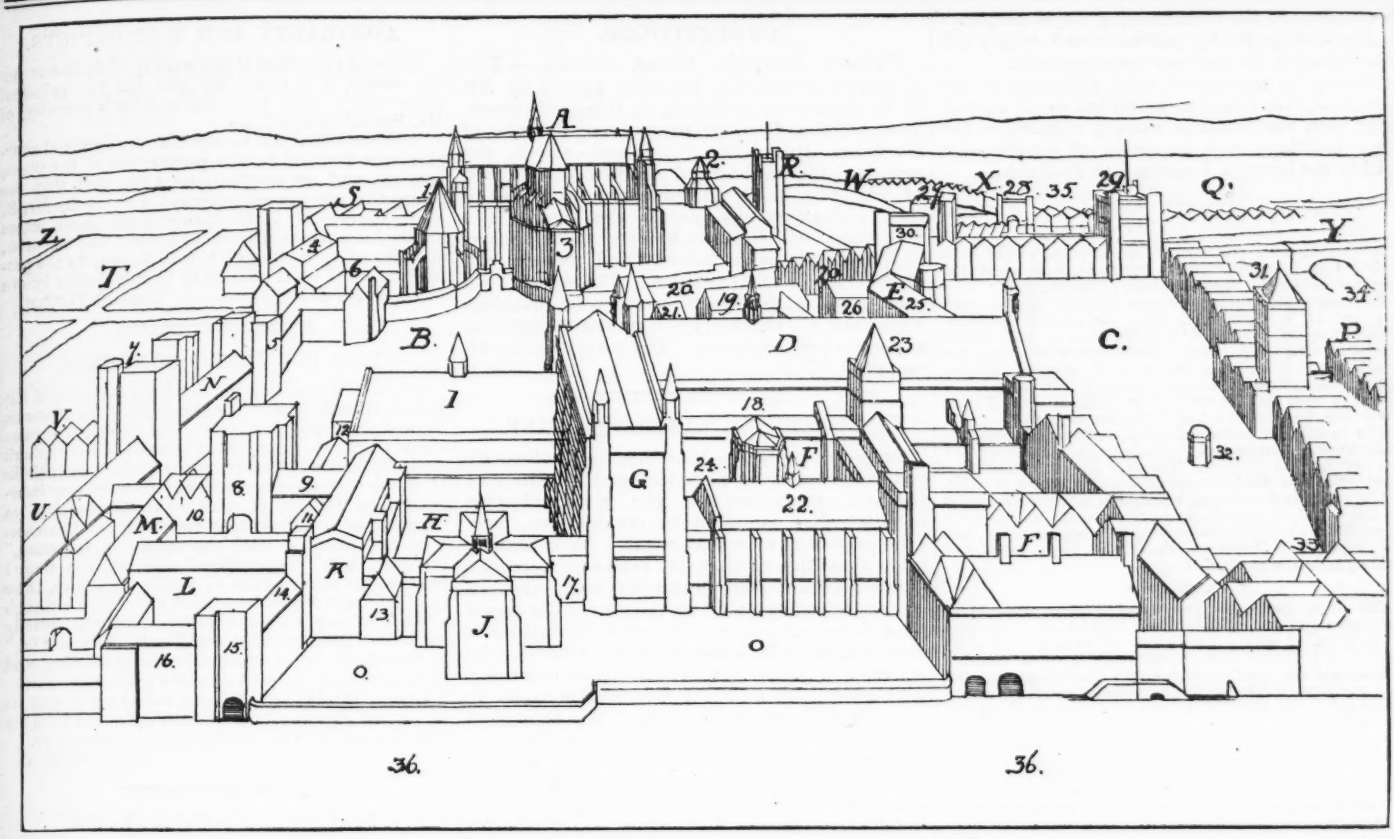
WESTMINSTER IN THE TIME OF HENRY VIII.



Key to Plate,—"Westminster in the Time of Henry VIII."

A. Westminster Abbey.
B. Old Palace Yard.
C. New Palace Yard.
D. Westminster Hall.
E. The Exchequer.
F. St. Stephen's College.
G. St. Stephen's Chapel.
H. Inner Court of the Palace.
I. The "White Hall" or "Court of Requests."
J. Chapel of "Our Lady of the Pewe."
K. The Painted Chamber.
L. The Parliament Chamber or House of Lords.
M. The Princes Chamber.
N. The Constabulary.
O. The King's Garden.
P. The Wool Staple.
Q. The King's Park.
R. St. Margaret's Church.
S. The Almonry.
T. The Abbey Garden.
U. The Offices of the Palace.
V. The Way to the King's Bridge and Millbank.
W. The Greater Sanctuary.
X. The Little Sanctuary.
Y. The Queen's Bridge.
Z. The Abbey Mill-stream.
1. The Abbey Chapter-house.
2. The Great Clockard.
3. Henry VII.'s Chapel.
4. St. Catherine's Chapel.
5. The Jewel House.
6. Infirmary of the Abbey.
7. South Gate of Palace.
8. Nursery Chambers (?)
9. The Queen's Hall (?)
10. Residences of Nobility in Waiting upon the King and Queen (?)
11. The Queen's Private Oratory (?)
12. The Gaol.
13. King's Private Chapel (?)
14. Antioch Chamber (?)
15. Tower "at the King's Garden" (?)
16. The "Cage Room" (?)
17. Chapter-house of St. Stephen's College.
18. Oratory in Cloisters, St. Stephen's.
19. The King's Fishmongery.
20. 20, St. Margaret's-lane.
21. "Heaven," "Hell," and "Purgatory."
22. Refectory of St. Stephen's College (?)
23. Bell Tower of St. Stephen's College.
24. Cloisters of St. Stephen's College.
25. The Greater Exchequer Chamber.
26. The "Lesser Exchequer Chamber" (?)
27. Gateway fronting Street to Greater Sanctuary.
28. Gateway fronting Street to Little Sanctuary.
29. Richard III. Gateway, or "The High Tower."
30. Gateway between New Palace Yard and St. Margaret's-lane.
31. The Clock Tower.
32. The Great Conduit.
33. The Star Chamber.
34. The River Tye.
35. The Long Ditch.
36. The Thames.

BUSINESS PREMISES IN OXFORD-STREET.

We publish this week an illustration of some new business premises completed in the spring, standing on the south side of Oxford-street, in proximity to the Marble Arch, on the Duke of Westminster's estate.

They consist of three sets of premises, those to the eastward being built for Messrs. Holland & Holland, coach-builders; those in the centre for Messrs. Tautz & Sons, tailors and breeches makers; and those to the westward for Messrs. Peal & Co., waterproof leather manufacturers and boot and shoe makers.

The buildings throughout are faced with red brick, and have Corsehill dressings, string-courses, and cornices. The pilasters on the ground-floor are in polished red granite, with specially cast gun-metal caps and bases to Messrs. Holland & Holland's premises, having ornamental pilasters of iron on the upper stories, which have been supplied by Messrs. H. Young & Co., of Eccleston Iron Works, Pimlico.

The premises extend from Oxford-street to North-row, having an average depth of 130 ft. A considerable portion of the flooring is fire-proof, being formed of wrought-iron girders and rolled joists filled in with concrete, finished with asphalte on the surface, the ironwork being protected throughout.

For the purposes of the business of Messrs. Holland & Holland, a hydraulic lift has been constructed from the basement to the second floor, prepared to take the heaviest coaches, and this has been supplied by Messrs. Waygood & Co., of Falmouth-road, Great Dover-street, Southwark. The buildings are lighted in the centre by well-holes and skylights of ornamental character.

Messrs. Tautz & Sons' premises are heated throughout the workshops by hot water, and both this and Messrs. Peal & Co.'s heating have been executed by Mr. W. W. Phipson, of No. 1, Salisbury-street, Strand.

Messrs. Peal & Co.'s building is warmed throughout with low pressure steam, having special coils on each floor; and hydrants are furnished in various portions of the premises in case of fire, in connexion with street mains.

Especial attention has been paid to the ventilation of the premises, and the extraction-shafts for the removal of foul air from the premises have proved very effectual.

The whole of the works have been carried out by Messrs. Colls & Sons, of 53, Moorgate-street, and Camberwell, from the drawings, and under the superintendence of Mr. Thomas Chatfeild Clarke, of 63, Bishopsgate-street Within.

SEAFORTH CAVALRY BARRACKS, LIVERPOOL.

HOSPITAL WITH CIRCULAR WARD.

The hospital which we illustrate this week, and which will be one of the accessories to the barracks now being erected at Seaforth for the accommodation of a squadron of cavalry, is one of a new type, the main feature in the design being the circular ward,—a form of hospital construction which, although recently used in one or two instances at home and abroad, has never, until now, been adopted by the British Government. The present Inspector-General of Fortifications at the War Office, however, Major-General Sir Andrew Clarke, R.E., has thought it desirable to introduce, as an experiment, this newest principle of construction into a small hospital, believing that the avoidance of angles internally, and the exposure of the external walls, in which adequate window-space is provided, to the influence of the sun's rays throughout the day, are points of the utmost importance in all buildings intended for the housing or recovery of the sick.*

* We have ourselves more than once expressed considerable scepticism in regard to the supposed advantages of the circular ward, but of course concur in the desirability of giving it full trial.—Ed.

The external walls throughout the building will be of brick, with a 2½-in. hollow space formed in them; and the hospital, as will be seen from the plan, gives accommodation for eleven patients,—nine in the main ward, and two in the ward for special cases. The room for the orderly, or nurse, is conveniently placed between the two wards, with an inspection window into each, and the small ward has a window on each of three of its sides. The "annexe,"—so-called,—contains water-closets, bath, wash-basins, and other conveniences, and these are cut off from the hospital in the manner described in the subjoined "instructions." The waiting-room is fitted with a hinged flap, at which such convalescents as are able to leave the ward may dine. There is a store for the sick men's packs, and a general store for clean linen, bedding, medical comforts, utensils, &c. The surgery is centrally placed near the main entrance.

The kitchen department is entirely cut off from the hospital proper, and any cooked provisions must first be passed from the kitchen into the outer air (under cover) before being brought into the main building; by this means no effluvia from the kitchen department can reach the inmates.

The quarters for the assistant-steward in charge are placed on the first floor, and, for the purpose of isolating his family and preventing contagion, are approached by a flight of steps outside the building. The quarters consist of a living-room, bedroom, small scullery, and a yard with accessories.

All rooms intended for habitation are ventilated by the admission of cold fresh air through movable louvred ventilators connected with a duct in the external walls and by the admission of warmed fresh air from a chamber at the back of a Galton grate, the vitiated air being carried off by an extracting flue in the chimney-breast, fitted with one of Boyle's ventilators to prevent down-draught.

The circular ward is ventilated in the manner described in the instructions forwarded from the

War Office to the Commanding Royal Engineer of the District for his guidance, and which will also describe the sanitary arrangements.

It may be mentioned, with reference to the elevation, that it had to be worked out in accordance with the features already adopted in the other buildings now in course of construction within the barrack boundary at Seaforth.

INSTRUCTIONS.

Sanitary Arrangements.

A disconnecting pit is to be constructed at the most secluded spot available for the purpose, near where the hospital drain meets the main drain of the barrack.

Such rain-water pipes the heads of which may be near, but not at a higher level than the window openings, should not be connected with the drains, but should discharge over gully traps. Those rain-water pipes the heads of which are at a higher level than the window openings near them, or at some distance from any window openings, need not, on sanitary grounds, be cut off from the drains, but should act as ventilators to them.

The wastes from baths, sinks, &c., should discharge over gully traps. Those called "Dean's traps" are considered the best for the purpose. The first length of drain-pipe from such traps should be provided with a socket in which a 2-in. galvanised cast-iron ventilating safety-pipe should be fixed, and be carried up to the roofs. Wastes from upper floors should discharge over open hopper heads, and the down-pipes therefrom should discharge over open gullies, as before mentioned.

Ventilation.

The upper or domed portion of circular ward to be ventilated by dormers fitted with louvres; each opening being provided with a hinged flap or shutter worked by lines and pulleys. The ceiling to be groined at these points, and the openings fitted with movable perforated iron gratings, which, for the purpose of cleaning, are to be hinged at the lower, and fixed by screws at the upper, extremity.

The central extracting-shaft in this ward may be constructed in either of the following ways:—

1. In the manner shown, viz.:—By having two of the sashes at the top of the lantern hung on pivots for opening and closing, with lines and pulleys; and a perforated iron or zinc disc at the bottom, which disc should be made removable for the purpose of cleaning the shaft. This disc should be in two parts, with a hole formed in the centre for the passage of the ventilating pipe of the gas pendant.

2. By having the openings fitted with louvres, provision being made for partially closing the shaft by a pivoted flap or diaphram worked by cords or chains attached to a counterpoise weight, and running over pulleys. The counterpoise weight might extend to 10 ft. or so from the floor, and be worked by a hooked stick. This regulating diaphram must be situated high enough up the shaft to be sufficiently clear of the gas and ventilating pipes of the pendant.

3. By having louvred openings, as before described, and the bottom of the shaft fitted with a box containing Boyle's ventilators on each of the four sides, the bottom of the box being closed and made of some incombustible material, such as fire tile, slate, or a slab of Keenan's material perforated for the passage of the ventilating pipe of the gas pendant.

4. By a sunlight, the flue-pipe of which should be continued inside the ventilating-shaft, or embodied with it, in which case the construction should be of galvanised iron, together with a spirelet in ornamental zinc, of similar character to that shown. The pipe may be packed with Keenan's non-conducting material wherever the heat is likely to produce inflammability.

The space for water-closets and urinal to be enclosed by half brick walls in cement, running up to the ceiling so as to prevent the emission of tainted air, but the partitions between water-closets and urinals may be of slate, and need not be more than 6 ft. 6 in. high.

The water-closets are to have each a hinged seat, with a false seat under, covered with 4 lb. lead, so that the water-closets might be available as slop-sinks.

The lantern over the lobby outside the circular ward to be formed in two compartments, the sashes of each compartment being made to open on centres.

SKETCHES BY A DISTRICT SURVEYOR.

V.

Abbeville, on the Northern Railway of France, is the first town of importance after Boulogne, and is famous as the place of meeting between Francis I. and Cardinal Wolsey, when Francis and Henry VIII. were about to league themselves against Charles V. There are several interesting old houses, with overhanging stories, in the town. The sketch represents the square, with the towers of St. Vulfran, a fine unfinished basilica, rising beyond.

Tours.—The staircase in the house of Tristan the Hermit (a familiar figure in "Quentin Durward") is entirely of brick. The courses I have been careful to give, both in number as well as form. I am not quite certain that the date is correct. I should put it a little later. I give, however, the local tradition as to date.

The other stone staircase is in the cloisters of Tours Cathedral, leading to the priests' room. It was sketched on the spot, but re-drawn from an assumed position, as it was impossible to obtain an actual standpoint from which both the unique handrail and the ceiling design could be combined without a violation of perspective.

T. E. Knightley.

Leek.—Mr. Albert Vicars, of Somerset-chambers, 151, Strand, London, is preparing the design for St. Mary's new R.C. Church at Leek, Staffordshire, for the Rev. Alfred M. Sperling.

COMPETITIONS.

Victoria Assembly Rooms, Burnley.—This (limited) competition has been gained by Mr. G. B. Rawcliffe, architect, 8, Ormerod-street. The building is to be erected on the site of Goodham Hill Mill, St. James'-street, the principal thoroughfare of the town. The area of the site is to be increased by means of iron girders carried across the river. The auditorium will be over twenty yards square, and, together with balcony and gallery, will accommodate 2,000 persons. There will be a proscenium and large platform with dressing-rooms and all necessary appliances for operatic and other performances. The total cost is estimated at 6,000*l.*

CROSIER AND PASTORAL STAFF.

Sir,—In reply to Mr. Slingsby-Stallwood's courteous letter on page 606, and to your own editorial comments on the communication with which I ventured to trouble you, may I be permitted to repeat what I have already said, that the distinction between a crosier and a pastoral staff drawn by many modern writers is indisputably erroneous, and is based on a false etymology. No such distinction is known to early lexicographers and writers, who on such a point are the only trustworthy authorities. It is quite beside the mark to quote Mrs. Jameson, Dr. Lee, "The Liturgical Reason Why," and other modern authorities, who simply copy one from another without going back to the fountain-head. Webster's Dictionary is, for such a purpose, absolutely worthless. Even Richardson,—a somewhat safer guide, though his etymologies are his weakest point,—goes equally wrong here, deriving "crosier" from *croix*, a cup, "of which," he says, "it has the image on the top."

There is no question of the fact that the distinctive mark of archiepiscopal dignity was a staff, with a cross at the summit, usually borne before him processionally, even as a pastoral staff is borne before a bishop by his official, but also, like the pastoral staff, capable of being carried by himself. On sepulchral brasses or other monuments it is naturally found in an archbishop's hand as a symbol of his rank.

But this cross-headed staff, I repeat, is not the crosier, nor was it ever so called except by modern blunderers. The crosier and the pastoral staff are one and the same thing under different names; and the crosier has nothing to do with a cross. This is a simple etymological fact which no one who knows anything of the history of language will care to dispute. To substantiate what I say, I will quote Professor Skeat's words, "*Crosier* formed with suffix *er* from Middle English *croce* in the same sense of 'bishop's staff.' Old French *croce* 'a crosier,' Cotgrave; modern French *crosse;* Low Latin, *crocia;* old French *croc*, a crook, *not from* cross, *to which it is* only ultimately *related.*" If, for convenience sake, people nowadays choose to make a distinction between the "crosier" and the "pastoral staff," they are at perfect liberty to do so, but they must be warned that it is in direct defiance of etymological truth.

Edmund Venables.

The Precentory, Lincoln, Nov. 5.

Sir,—Referring to crosiers, I beg to hand you some extracts from heraldic writers on the subject.

Boutell says:—"Crosier, the cross-staff of an archbishop; distinguished by its form from the pastoral staff (with a crook-head) of bishops."

Aveling describes it as "the cross-headed staff of an archbishop."

Cussans speaks of it as "a staff bearing a cross at the top, belonging to an archbishop," and says the bishop's staff is like a shepherd's crook.

On the other hand, Hugh Clark and Ellen J. Millington speak of the crosier as the bishop's or abbot's pastoral staff; and in other works of a minor character it is so described.

Parker says:—"The crozier of an archbishop was surmounted by a cross *after* the twelfth century."

I am inclined to think that Boutell and Cussans are the best authorities on this subject, but would like to see further notes about it from other correspondents. John Bagnall.

Cheltenham, Nov. 5th, 1834.

*** These letters were unavoidably postponed last week.

ADMIRALTY AND WAR OFFICES.

Sir,—In your issue of last week [p. 622] illustrating my design, it is said "we give the two principal plans and a view, from the *architect's drawing*, of Mr. Porter's design," &c.

Will you allow me to say that my personal energies were devoted to the preparation of the plans, sections, and geometrical elevations, and that the *perspective views* were prepared for me by Mr. E. F. C. Clarke, of 7, Westminster-chambers, whose ability (as a perspective draughtsman and colourist, and also as an architect) is well known to the profession, and I trust will every year be better known to the world at large? Thomas Porter.

THE PLUMBERS' CONGRESS.

Sir,—Will you allow me to relieve the mind of Mr. Robert Gibson [p. 641], or any other clerk of works, by stating that as it is now about twenty-five years since I was a journeyman plumber, any remark made by me in reference to my contact with clerks of works then need not cast any depreciatory inference upon "clerks of work of *the present day*," as a quarter of a century may make a great difference. I do not think I used the word "journeyman," however, but "apprentice," and at the time I referred to many clerks of works, I believe, knew very little about plumbers' work; and even although a clerk of works were able to distinguish readily between "5 lb. and 6 lb. lead," or "7 lb. and 9 lb.," he would not be of much value in promoting good plumbers' work unless he knew a great deal more.

I think Mr. Gibson has been rather hasty with his letter, and drawn a very strained inference from my remarks, and one the context in no way conveys.

W. P. Buchan.

DERBY LUNATIC ASYLUM COMPETITION.

Sir,—There is a rumour in the air that one of the competitors in the Derby Lunatic Asylum Competition has had his design rejected on account of his estimate, 32,000*l.*, being too high. This, of course, is too good a joke to be true, as I should suppose the Derby authorities would know from experience that nothing like that sum would be sufficient to carry out the work. This competition has remained undecided for a most unreasonable time; and I believe I am justified in saying that the whole of the competitors would feel more justly treated if a competent and independent assessor were called in to advise the committee not only as to the merits of the designs, but also as to the trustworthiness of the estimates. T.

Nov. 12th, 1884.

CHURCH BUILDING NEWS.

Bristol.—St. Andrew's Church, Montpelier, has been re-opened, after undergoing alterations and improvements. The work so far carried out under the improvement scheme consists chiefly of a modification as well as decoration of the nave and transept roofs, giving to the interior of the church an effect of loftiness and brightness, as well as improving the acoustic properties of the building. The old western gallery, which projected some 23 ft. into the church, has been removed, and a new one constructed extending only half the distance, having a stone front supported on moulded and enriched arches, red Devonshire polished marble columns, foliated capitals, and enriched cornice. The carving has been executed by Mr. Wilmot. The solid partition and doors which originally stood in the entrance under the tower have been removed, and the walls and ceiling decorated by Mr. John Powell. A new staircase has been constructed to the gallery; also a new belfry floor and tower roof. Much, however, remains to be done. The walls of the nave and transepts have been distempered as a ground for future decoration, and new seating is greatly needed in the body of the church. The contractor for the works now carried out was Mr. W. E. Walters, of Montpelier, the architect being Mr. John Bevan, of Unity-street, Bristol. The cost of the alterations up to the present is about 400*l.* Mr. Bevan has been appointed architect for the new Church of St. Alban, Ashtongate, Bristol.

St. Kew (Cornwall).—St. Kew is an out-of-the-way place some four miles from Wadebridge. In its old parish church of St. James there are many features which remind the architectural student of Somersetshire handiwork. The fabric was restored a few years ago at an expense of several thousands of pounds, and at that time a rood-screen was erected. It was not, however, rendered complete by the placing thereon of the cross which was so essentially a feature of all old rood-screens. This, how-

ever, has now been done. It is a foliated cross, made entirely of stout English oak. The upright post and the arms are ornamented by boldly-carved crockets, and the eastern and western faces are panelled with tracery. Upon the one facing west at the junction of the cross-piece are the letters I H S. At the base is a triple array of crocketed pinnacles which are connected with and support the main portion by means of flying buttresses. The cross has been made by Mr. Harry Hems, of Exeter, from the designs of Messrs. Hine & Odgers, architects, Plymouth, under whose supervision the general restoration of St. Kew Church took place.

Cross Inn, Llandebie (Wales).—The foundation-stone of the new Church of St. Michael and All Angels, at the village of Cross Inn, about two miles from Llandebie, has been laid. The church will be Early Decorated in style. The architect is Mr. D. Jenkins, Gorlâs, Llanarthney; the builder, Mr. Benj. Jenkins, Brecon; and the cost is estimated at about 1,000*l.*

Roath (Cardiff). — St. Germain's Church, Roath, Cardiff, has been opened by the Bishop of Llandaff. The building is Gothic in style. It comprises nave, aisles, and chancel. Its internal dimensions are 120 ft. in length by 62 ft. in width. The chancel arch, from the floor level to the apex, is 55 ft. high. The roofs of the nave and north and south aisles are divided by Bath stone moulded arcades. The arches spring from eight massive moulded columns, 24 ft. high and 2 ft. 3 in. in diameter. The chancel is lighted by five mullioned and traceried windows. The six-light east window has moulded mullions and transoms supporting rich tracery. This window is a principal feature in the building. The roof of the chancel is carried by three moulded Bath stone arches, supported by three-quarter Bath stone columns resting on moulded corbels. The south aisle is to be a chapel. The roof of the aisle is carried on Bath stone ribs springing from moulded corbels. From the aisle are doorways leading into the clergy and choir vestries. The floor of the south aisle is laid with wood blocks and buff tiles, divided by bands of Hopton Wood stone. Here is a small altar, approached by two steps laid between with dark blue slate and Hopton Wood stone. The altar is approached by six steps of slate filled with Hopton Wood stone and slates, the pattern giving the appearance of black and white marble. Under the choir stalls are laid wood blocks for the choristers to stand on. From the chancel arch is suspended a richly-carved rood, resting on a massive moulded beam, supported on two carved corbels, supplied by Messrs. Farmer & Brindley, of London. On the south side of the church is the organ-loft. This is approached by winding stone stairs. Above the chancel arch on the outside starts a small bell turret to the height of 50 ft. above the ridge, surmounted by a cross, in which is hung a bell, weighing about 10 cwt., supplied by Mr. Thompson, of Loughborough. The style of the architecture is thirteenth-century Gothic. The whole of the work is from the designs of Messrs. Bodley and Garner, of London, and has been carried out by Messrs. Shepton & Son, of Cardiff, under the supervision of Mr. David Knight, clerk of the works, at a cost of about 12,000*l.* The church is heated by hot-water pipes, supplied and fixed by Messrs. Fox & Co., London, and the gas-fittings are by Messrs. Watts & Co., London.

Sheffield.—The parish church, St. Peter's, is about to be enriched by the addition of a carved reredos. The feature was included in the general idea when the church was restored, and Messrs. Flockton & Gibbs (with the late Sir G. Gilbert Scott, R.A., as consulting architect) then prepared a design for a reredos, which circumstances did not at the time allow of being carried out. The idea was not lost sight of, however, and now we learn that the original design, subject to some minor alterations and additions, is to be immediately carried out in its entirety. The reredos will be made of well-seasoned English oak, and Decorated in style. It will extend the entire width of the chancel,—*i.e.*, some 21 ft.,—and will rise at its highest altitude about 9 ft. The lines are all managed so as not to interfere with or block in any way the four-light window above. The central portion has three arcaded panels, separated by niches, about and over which will be a wealth of canopied and pinnacled work. At each side of this are highly ornamental arcades of six bays each, whilst the blank spaces bounding the great window will be utilised by carrying up another arcade similar in character to that immediately beneath. The work has been placed in the hands of Mr. Harry Hems, of Exeter, whose name is so frequently mentioned in our columns that it may be interesting to state that in his early years he toiled in one of the dirtiest of Sheffield manufactories as a cutler's lad.

Skelton-in-Cleveland.—The Archbishop of York has consecrated the new church of All Saints, at Skelton-in-Cleveland, which has cost 13,000*l.* The edifice is in all respects a striking contrast to the last-century parish church which it has replaced. The new church, the site of which is in the village, while that of the old church is some distance away, is capable of comfortably seating 700 adults. Seen from the outside, a striking feature of the church is its freestone tower, 24 ft. square, with large buttresses at each angle, and rising to a height of more than 80 ft. This tower, together with a peal of bells and a clock, has been built at the entire cost of Mr. J. T. Wharton, Skelton Castle, lord of the manor. The bells have been provided by Messrs. Taylor, of Loughborough. They number six, and weigh 79½ cwt., with a tenor bell of 23 cwt. The clock has 6-ft. dials, it strikes the Cambridge quarters, and has been supplied by Potts & Sons, of Leeds. The church was commenced at the beginning of 1881. The plan shows the building to consist of nave, with north and south aisles, choir, chancel, organ-chamber, and vestry. The walls are built of hammer-dressed freestone, principally obtained from a local quarry; the south front, the windows, doors, piers, and arches being of freestone. The principal entrance is at the west end of the south aisle, through a porch connecting the church with the tower. The style of architecture adopted is the Curvilinear Gothic of the fourteenth century in its later form of transition to the Perpendicular. The chancel has a fine east window of five lights, placed rather high in the wall, and beneath is a carved reredos of oak. The wood-carving has been executed by Mr. Hedley, of Newcastle. The floor of the chancel is laid with marble mosaic by Messrs. Burke & Co., of London. The roof is of pitch-pine. The walls are plastered, relieved with a deep oak panelling, with a moulded and carved cornice running round the building. The architect was Mr. R. J. Johnson, of Newcastle; the contractor, Mr. F. Caldcleugh, of Durham; the clerk of the works, Mr. Hindmarsh, of Middlesbrough.

Aveton Gifford.—The Parish Church of St. Andrew, Aveton Gifford, is one of the most interesting of South Devon churches. Walter de Stapledon was rector ere he became Bishop of Exeter in 1307. The church was generally restored under the direction of Mr. Elliott, architect, Plymouth, in 1869; until then the remains of a pair of fine old carved oak parclose screens occupied the two easternmost bays of the south arcade in the chancel. These were so sadly decayed, however, that they were removed, and have ever since been stowed away in the depths of the rectory cellar. It is to the credit of the rector that he has resolved to have these most interesting specimens of Mediæval art workmanship carefully renovated, and once again placed *in situ*. With this end Mr. Harry Hems, of Exeter, has been commissioned to take them in hand. The two screens will each be about 12 ft. long and about the same height. The old work exhibits much delicate manipulation of an unusually clever character. It is all late fifteenth-century handiwork, the carving is crisp and vigorous, and although very much decayed is reported to be by no means past making good.

Hunslet (Leeds). — The new Church of St. Cuthbert, Hunslet, has been consecrated by the Bishop of Ripon. It is situated in Kirkland-street, Beeston-road, and is erected in the Early Pointed style, of fine red brick inside and outside, with stone dressings and terra-cotta enrichments. The plan of the church has been specially arranged to meet the contracted nature of the site, which is a short parallelogram. It consists of a nave, with clearstory, choir, sanctuary, and north and south aisles. The stone arcade of the former extends from the west to the east end as far as the sanctuary. The choir is raised four steps above the nave floor, and is enclosed by a low stone wall. The roofs are of pitch-pine unvarnished, covered with boarding, felt, and light green Westmoreland slating, and having red ornamental Staffordshire ridge cresting. The floors throughout are laid with marble mosaic concrete. The heating is by low-pressure hot-water apparatus, and the lighting by gas jets arranged along the clearstory. The pulpit is of Caen stone, on a base of blue stone. The font is a circular bowl of solid alabaster on a base and steps of blue stone, and enriched with blue stone and alabaster shafts, with moulded caps and bases. The church will seat 500 persons. The works have been carried out by Messrs. Longley Bros., of Hunslet; and their sub-contractors have been Messrs. Sharp & Harper, slating; J. Woffenden, plumbing and hot-water apparatus; J. Bond, lead windows; J. Appleyard, general stone carving, pulpit, and font; Wood & Son, painting, all of Leeds. The air-extractor was supplied by the Harding Ventilating Company; the marble mosaic concrete floors were laid by Messrs. Diespeker & Co., of London; the brass altar standards were supplied by Messrs. Jones & Willis, of Birmingham; the brass eagle lectern by Mr. Hodkinson, of Coventry. The bell was cast and hung by Messrs. Mears & Stainbank, of London. The architects are Messrs. Perkin & Bulmer, of Leeds.

Cork.—An addition has been made to the eastern end of St. Mary Shandon Church, in the shape of a carved oak reredos, extending the entire width of the sacrarium. The central part is higher than the two wings, and is divided into five compartments. They are supported by columns carrying carved capitals, over which runs a continuous cusped arcading. The main cornice is embattled. In the central panels are the words, "This do in remembrance of Me." Each of the other four panels contains in the upper parts circular recesses, in which are Tudor roses, whilst below are vesicas. In these latter are carved respectively in high relief Alpha and Omega, as well as wheat and the vine. The reredos has been made by Mr. Harry Hems, of Exeter.

Walthamstow.—The Bishop of St. Alban's dedicated on Sunday, November 2nd (the tenth anniversary of the consecration of the church), a chancel-screen, erected in St. Saviour's Church, Walthamstow, in memory of the late vicar, the Rev. T. H. G. Robinson. The interior of the building called for some relief to the unbroken vista looking towards the chancel and the coloured mosaic reredos on the apse walls, and the proposal to insert a screen of alabaster and marble was quite approved by the architect who had designed the church itself. The appearance of the reredos, with its blue background, is much enhanced by being seen through this warm-coloured open framework of arches and tracery, the material having been specially selected from the Fauld Quarries at Tutbury, in North Staffordshire, by the masons, Messrs. Dyke & Son, of Highgate-road. The plinth is of dark alabaster, inlaid with marbles, Cork red marble being used for the columns. An inscription is cut, in gilt letters, along that portion of the screen nearest to the stall occupied by the late vicar. The central archway is to be flanked by two guardian angels, for which the commission has been given to Mr. H. Armstead, R.A., the architect of the screen being strongly of opinion that any sculpture introduced in a church should be the best that can be got. The bronze gates have been executed by Messrs. Hart, Son, & Peard, of Regent-street, who have also re-arranged the gas lighting. The whole has been carried out from the designs and under the superintendence of Mr. Edward J. Tarver, architect.

Aberdeen.—St. Andrew's Church, Aberdeen, has just acquired one of the handsomest sculptured reredoses in Scotland. It is constructed of Caen stone and Devonshire marble in the Early English style of architecture, and is intended to serve as a memorial to the late Bishop Suther. It has been made from the designs and full-sized detail drawings of Messrs. Pirie & Clyne, architects. The carrying out of the work was entrusted to Mr. Harry Hems, sculptor, of Exeter. The reredos is about 15 ft. high, and fills all the east wall beneath the window. In outline it presents three lofty stilted and crocketed gables, standing on the apex of the central one. At each side,—that is, upon the springing stones of this middle gable,—are other sculptured angels kneeling in adoration. But the most striking portions of the work are the three groups of sculpture in the round, which occur immediately over the super-altar. Immediately beneath this re-table is a tabernacle of delicately-wrought brass work, whilst on either side, in raised letters, is an inscription dedicating it to the

memory of Bishop Suther. The panel on the north side represents Our Lord blessing children. The south panel is about 7 ft. high. It is illustrative of the Sermon on the Mount. The central panel is devoted to a statue of Our Lord as the Good Shepherd.

ROMAN CATHOLIC CHURCH-BUILDING NEWS.

St. John's Wood.—The Church of Our Lady, Grove-road, St. John's Wood, was the first Roman Catholic Church built in London after the Emancipation Act, and one of the first Gothic churches of the Revival, the contract drawings being dated October, 1832. It was designed by Mr. J. J. Scoles. The church was re-opened on Sunday, Oct. 12th, after thorough repair and the erection of a new stone and alabaster altar, with a rich reredos of the entire width of the nave, and rising so as to form an architectural composition with the large triple lancet window. It is contrived so as to occupy the whole thickness of the wall, with pierced traceried openings to the staircase and passage behind, for access to the throne used in the rite of exposition. The floor of the sanctuary and chapels has been laid with parquet work. The whole of the works has been executed by Mr. Anstey, from the designs and under the superintendence of Mr. S. J. Nicholl, who was a pupil of Scoles, the original architect of the church.

Clitheroe.—Special services have been held in connexion with the dedication of the new Lady Chapel of the R. C. Church at Clitheroe. The chapel has been constructed on the right-hand side of the principal altar. In its main features it harmonises with the architecture of the church. The floor is formed of mosaic work, marble, and alabaster, and the pillars, arches, &c., of the chapel are of marble. Mr. S. J. Nicholl, of London, is the architect, and the work has been done by Mr. Anstey. On the right-hand side of the entrance there is an alabaster statue of the Virgin, and within the chapel there are three paintings by Mr. Joseph Bouvier, portraying incidents in her history. The first one on the background beneath the altar represents the "Tomb of Our Lady, and the ten Apostles showing St. Thomas where her body had been laid, but the body was not there, there being only flowers in the tomb." Behind the altar is a picture of the "Assumption." Higher still there is the representation of the "Coronation of the Virgin by the Angels in Heaven."

Stabannon (Ireland).—The foundation-stone of a new church at Stabannon, in the county of Louth, was laid on the 5th ult. The estimated cost of the new building is 4,000*l.*, but before it is finished and fully embellished a good deal more than this will have to be expended upon it. The church, which consists of nave, sanctuary, tower, and porch, with priests' and boys' sacristies, is in the style of Gothic known as Early English. The total length of the church internally is 100 ft., of which 78 ft. 6 in. is given to the nave, and 21 ft. 6 in. to the sanctuary. The width of the nave is 28 ft. and that of the sanctuary 20 ft. clear inside measurement. The nave is lighted by eight lancet windows, with trefoil heads in the sides, and three large lancet windows in the west end, over the principal entrance door. The sanctuary is lighted by two lancets in flank, and by a large triplet window in end. The height of the side walls is 20 ft., and to apex of roof 45 ft. The height to top of cross on spire is 97 ft. 6 in. The chancel arch is richly moulded, supported on corbel shafts of polished granite, with angels carved in stone beneath. The roof of the nave is of open timber work, with arched and moulded ribs to trusses; that of the sanctuary is divided by moulded ribs into panels for future decoration. The work is being carried out by Messrs. Matthews & Colligan, contractors, Stabannon, under the superintendence and from the designs of Mr. William H. Byrne, architect, Dame-street, Dublin.

Castleisland.—On the 5th ult. the new church of Castleisland, Tralee, was opened for worship. There were seven designs submitted in competition for the erection of the church, and that of Mr. D. J. Coakley, South Mall, Cork, was selected. Mr. John Sisk, of Cove-street, Cork, was the builder. The church is built in the Early Gothic style, and is cruciform in shape. It consists of nave and aisles, chancel and transepts, with side chapels, vestry, porch, and tower. The length of the building is 136 ft., 81 ft. across the transepts, and 65 ft. across the aisles. It is 60 ft. high. The tower stands at the south-western angle, and will be 150 ft. high. Neither spire nor belfry has yet been erected, and the portion of the tower erected is only the same height as the roof of the church. The church is built of local dark limestone faced, and the dressings are of a light grey chiselled limestone. The organ was built by Mr. Magahy, of Cook-street, Cork.

DISSENTING CHURCH-BUILDING NEWS.

Glasgow.—The Wellington United Presbyterian Church, in University-avenue, was opened on the 12th ult. The building, which is among the most notable of recent ecclesiastical buildings in Scotland, occupies a highly-favourable site, facing southwards, and overlooking the University grounds and Kelvingrove Park. The site is a corner one at the junction of Ann-street with University-avenue, and it extends to about one acre. The principal front of the church consists of a portico of ten fluted Corinthian columns, approached by an open flight of steps from University-avenue. The church itself is about 90 ft. by 60 ft. and 47 ft. high inside. Its general form is rectangular on plan, with a gallery recess at the south end, and an organ recess at the north, the latter being covered by a half-dome richly moulded and decorated. The ceiling of the church consists of three arched or vaulted spans springing from what have the appearance of two longitudinal beams stretching from end to end of the church, and without pillars. The sides of the ceiling are coved and groined, and the whole is enriched with arched ribs and panels. The construction of the roof is of a novel character, consisting of two malleable iron lattice girders about 80 ft. long and over 7 ft. deep, stretching from one end of the church to the other. Between these two girders the middle arch of the ceiling rises, and between the walls and the girders the side arches spring, and the ceiling is thus supported entirely on the girders and side walls. The roof-principals and purlins are also of malleable iron. The church is provided with side and end galleries, and seats 1,050 persons. To the north of the church are situated the hall, 50 ft. by 35 ft., with an end gallery, the library, 35 ft. by 21 ft., and session-house, vestry, ladies' room, and numerous class-rooms, together with a church-officer's house. The total length of the building, including the outside stair, is about 200 ft., and its width at the north end is 100 ft. The height of the apex of pediment above University-avenue is about 75 ft. The columns of the portico and side walls, of which there are twenty, are 35 ft. high and 3 ft. 6 in. diameter. The total cost of the building, exclusive however of the cost of site, organ, furniture, &c., is 15,000*l.* The stone used is from Overwood Quarry. The following are some of the leading contractors for the work:—masons, Messrs. James Watson & Son; wrights, Messrs. Allen & Baxter; slater, Mr. Wm. M'Ewen; plumbers, Messrs. Wallace & Connell; plasterer, Mr. R. A. M'Gilvray; heating engineers, Messrs. J. Combe & Sons; painters, Messrs. A. & J. Scott; glaziers, Messrs. Wm. Meikle & Sons and Messrs. W. & J. J. Keir; gasfitters, Messrs. D. & G. Graham and Messrs. R. Laidlaw & Son; ventilating, Messrs. J. G. Carrick & Co.; marble mosaic pavements, Messrs. Walker & Emley; wrought-iron railing and gates, Mr. R. A. Stoffert. In working out the iron girders of the roof, the architect consulted with Messrs. Wharrie, Colledge, & Brand, civil engineers, and this contract was carried out by Messrs. Arrol, of Germiston Ironworks. The organ has been built by Messrs. Forster & Andrews, of Hull. Mr. T. L. Watson, F.R.I.B.A., is the architect.

Newlyn East (Cornwall).—A new Wesleyan chapel has been opened at Newlyn East. It is Gothic in style. The external walls are of native grey stone with granite dressings. The plan is a parallelogram. The main front has a central gabled recessed doorway with three-light traceried windows over, flanked by buttresses raised somewhat higher than the roof, and finished with ornamental pinnacles. The chapel will accommodate about 600 persons, and when all the details have been completed it will cost about 1,750*l.*, of which nearly three-fourths have been raised. The plans were furnished by Mr. John Ennor, of Newquay, under whose superintendence the work has been carried out by Messrs. J. Hawkey (Newlyn East), Jury Bros. (St. Austell), and Best & Bennetto (St. Dennis and St. Enoder).

STAINED GLASS.

Emanuel College, Cambridge.—The whole of the windows in the chapel of this college have lately been filled with stained glass. The style of the work is Classic, and the arrangement consists of rich figure work panelled, under canopies, with a framework of elaborate detail. Each window contains two figures of men celebrated in history for their great learning as types of scholarly character. They are arranged to commence at the east end, and read thus:—(1) Origenes; (2) Jo. Erigena; (3) John Colet; (4) Wm. Tindale; (5) Benjamin Whichcote; (6) Peter Sterry; (7) John Smith; (8) Wm. Law; (9) St. Augustine; (10) St. Anselm; (11) John Fisher; (12) Thos. Cranmer. The Rev. A. Rose, M.A., Bursar of the College, lent valuable assistance in providing the authorities with details for the landscape background for this part of the work. Messrs. Heaton, Butler, & Bayne, of Garrick-street, London, designed and executed the work, under the supervision of the architect, Mr. A. W. Blomfield.

Uxbridge (Middlesex).—A window in the Late Decorated style has been inserted in the west gable of the south aisle of St. Margaret's Church, and filled with stained glass in memory of the James family. The window was designed by Messrs. Charles J. & C. Herbert Shoppee, architects, Doughty-street, Bedford-row. The stained glass is by Messrs. Clayton & Bell, of Regent-street, the subject being the Ascension. The window is in five lights. The stonework was carried out by Messrs. Fassnidge & Son, of Uxbridge.

The Student's Column.

ON THE CONSTRUCTION OF ROOFS.

III.

COLLAR ROOFS are frequently found over old buildings of moderate span, such as the nave or chancel of village churches, where considerable height is gained in the interior by having the roof open to the ridge. In these roofs (fig. 6) the heads of the rafters R are generally

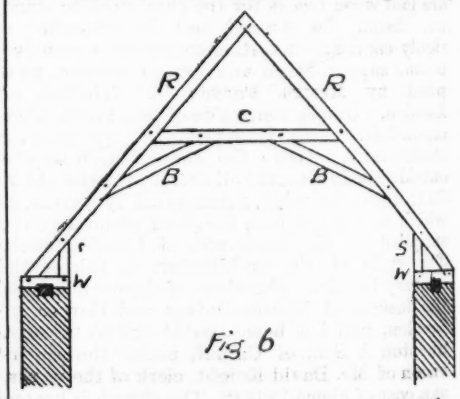


Fig. 6

halved on one another instead of abutting against a ridge-piece, and the feet are let into a horizontal *wall-piece*, W, with a mortise and tenon, and stiffened by means of the vertical strut, S, let into the inner end of the wall-piece, and also into the underside of the rafter: the wall-piece itself is notched down on a wall-plate laid along the centre of the wall. The collar, C, is placed high up on the rafters, and also tenoned into them; the collar and rafters being further held together by the oblique braces, B. All these pieces are fastened by means of oak pins driven through the tenons. The strength of such a piece of framing depends upon the unalterable property of the triangle, of which figure there are five in the present example; for it is a principle in geometry that the angles of a triangle cannot change without a corresponding change in the length of the sides. As long, therefore, as the pins hold in the tenons the framework will be perfectly rigid.

Curb Roofs are commonly used for town houses, and are formed of two pairs of rafters instead of one pair, as shown on fig. 7. The rafters B C, D E, whose ends rest on the top of the wall, are nearly upright, and connected at the feet with the floor joists, C E; their upper

ends are connected by ceiling joists or collars, B D, and support the rafters A B, A D, which are usually laid at a low angle of pitch. By this arrangement better rooms can be obtained in the roof than in the ordinary collar roof before described, without necessitating the carrying up of the walls higher than the floor level. The name "Mansard" is sometimes given to this form of roof after a celebrated French architect, who erected many roofs of the kind during the seventeenth century. The upper rafters having a low pitch are subjected chiefly to a transverse strain, as described under shed-roofs; while the lower ones having a high pitch may be considered to act as pillars, supporting the load of the upper roof, and to be subjected to a comprehensive strain only.

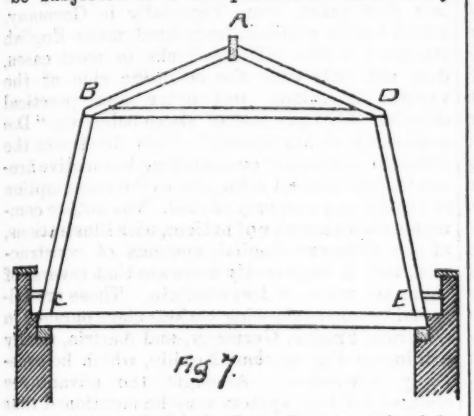


Fig 7.

The amount of this load can be ascertained by adding together the lengths, A B, B C, in feet, and multiplying the sum by 66, which will give the load, W, down each rafter, B C. Then, if we divide W by 1,800, and multiply the square-root of the quotient by the length, B C, in feet we have the sectional area in inches of the upright rafters of fir.

For example, let B C be 10 ft., A B 8 ft.; then W is 18 multiplied by 66, or 1,188 lb., which, divided by 1,800, gives ·66, the square-root of which is ·812, and this, multiplied by 10, gives 8·12 square inches as the sectional area required, or the scantling of the rafter B C may be 2½ by 3¼ for fir.

Framed Roofs.—When the span between the walls of a building is considerable, and the strength of the walls insufficient to bear much horizontal thrust, a *truss* is formed of timbers framed together in such a manner as to throw the load perpendicularly on the walls, and on this truss the common rafters and roof covering are placed. We have already shown how the rafters of a shed-roof can be supported on *principals* by means of *purlins*, and the same method is adopted in *framed* roofs. In fig. 8

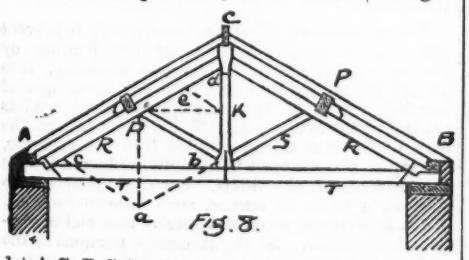


Fig. 8.

let A C, B C, be the *common rafters* which carry the roof covering, P the *purlins*, which support them in the middle, and themselves rest upon the *principals* R. Then, in order to counteract the thrust upon the walls of the principals, their feet are framed into a horizontal *tie-beam*, T, to which they are securely held by iron straps placed obliquely, and bolted to the beams to prevent them from slipping. But as the tie-beam is liable to *sag* or bend in the middle from its own weight, and that of a ceiling, which it generally has to support, the upright beam K is introduced, and is called the *king-post*, into the head of which the heads of the principals, R, are framed so as to hold it up above the tie-beam. To this king-post the tie-beam is tied up by means of an iron strap passed under it, and bolted to the king-post, which prevents the sagging of the tie-beam. One half of the weight of the tie-beam is thus thrown upon the king-post, which has also to bear one-fourth of the weight on the rafters, which is thrown upon it, by the ridge piece, C, resting upon its summit; and all this has to be borne by the principals. As the purlins, P, bring a heavy load to bear on the middle of the principals, a *strut* or *brace*, S, is fixed between the foot of the king-post and the part of the principal immediately under the purlin, by which means a part of the load is conveyed to the king-post, and the *sagging* of the principal is prevented. The purlins are usually fixed square with the rafters, and to prevent them from sliding downwards, blocks of wood abutting against them are nailed down on the principals. The feet of the common rafters are notched and spiked to *pole-plates*, A and B, which are spiked and notched on the ends of the tie-beam, while at their centre the rafters are notched and spiked on the purlins.

We will now consider the part which each beam in this truss has to play, and the nature of the strain it is required to bear. The purlins have to support about half the weight of the covering, which acts as a distributed load and produces a cross strain upon them, as in the case of a floor-binder. The principals have to bear the strain of the king-post and of the loads at C and P, which act mostly in the direction of their lengths as a compressive force. They may, therefore, be considered as long pillars supporting a load acting down their axis. The king-post has to bear the vertical strain arising from the struts and tie-beam, and is subjected to a tensile or stretching force. It also sustains a compressive force at the joints of the struts and principals, which press upon its foot and head. The struts are compressed by the pressure they have to sustain of the load on the principals, and they may also be considered as pillars supporting a load down their axis. The tie-beam is strained by the outward pressure of the feet of the principals, which produces a tensile or stretching force upon the tie-beam in the direction of its length. When the tie-beam has to support the weight of a ceiling or floor the principal strain upon it will be transverse, as in the binder of a floor, in which case the tensile strain need not be taken into consideration, as a beam that can carry the weight of a ceiling will more than suffice to resist the thrust of the principals. If there is no ceiling or floor to carry, a wrought-iron rod with nuts and screws at the ends will serve all the purposes of a tie-beam. As the king is entirely under tension a wrought-iron bolt is often used instead of timber, and the heads of the principals let into a cast-iron head through which the king-bolt passes, while its lower end is furnished with nut and screw to pass through the middle of the tie-beam and sustain its load, with corresponding cast-iron shoes for the feet of the struts.

The relation between the various strains on the timbers of the truss can be ascertained by a simple application of the mechanical principle known as the "Resolution of Forces," by which two forces can be found in any directions equivalent to a third force acting in some other direction. This is done by taking a straight line to represent the magnitude and direction of the third force, and describing a parallelogram with this line as the diagonal, and the direction of the other two forces for the sides. Thus, in figure 8, let P *a* represent the pressure at P, which is one-fourth of W, if W is the whole weight of the roof which rests on one truss; draw *a c* parallel to the strut P *b*, and *a b* to the principal P *c*; then P *b* represents the compression down the strut, P *c* that down the principal, arising from the load at P. If we draw the horizontal line P K, this will represent the horizontal pressure on the foot of the king at *b*, which is balanced by an equal and opposite pressure from the strut on the other side; the length, K *b*, represents the tension down the king-post from the strut, and as there will be a similar one from the other strut, twice the length K *b* will be the tension in the king-post from this cause. To this we must add half the weight of the tie-beam and any load it has to carry, and we have the total amount of tensile strain to which the king-post is subjected.

The strain on the king-post produces a compression down the principals; and if we take *b d* to represent the total strain on the king-post, the length P *d* will be the compression down the principal from this cause. There is also the load at C of one-fourth W, half of which is supported by each principal; and if the length K *d* represents one-eighth of W, and K *e* is drawn parallel to B C, then *d e* will be the compression down the principal from this cause. Adding all these amounts together we get the total compression down the principal, and can find its scantling as a long pillar by the rule given in the articles on "Floors." If the trusses are 10 ft. apart and the load is taken at 66 lb. per square foot, the value of W in pounds will be the length (in feet) of one rafter multiplied by 1,320. The strain down the king-post will be one-fourth of W, together with half the weight of the tie-beam, which latter may be taken at 120 lb. per foot of length when it carries a ceiling only. This is the only part of the roof which is unaffected by the angle of pitch; it may be safely strained with 750 lb. per square inch of section.

The compression down the principal, when the pitch is 30°, will be half W, together with half the load of the tie-beam; and that down the strut S will be one-fourth of W. With these data the student can easily calculate for himself the scantling of the several timbers for roofs of various spans.

The graphic method of showing the strains on the parts of a truss by means of a geometrical diagram, which was introduced by the late Professor Clerk Maxwell, can be readily applied to a roof of this kind; the vertical strains at the several points being known, the other strains are shown by the diagram. To apply the method to a king-post roof, draw the vertical line A F (fig. 9), and take A F to repre-

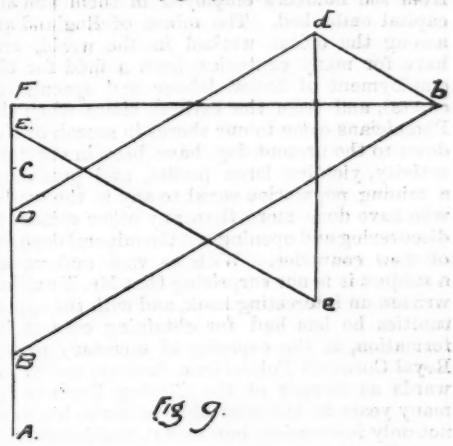


Fig 9.

sent on scale half the weight, W, of roof with its load of covering, &c., together with half the weight, *w*, of the tie-beam and ceiling. Measure (on same scale) A B to represent one-eighth of W plus one-fourth of *w*, which is the load at A (fig. 8); take B D to represent one-fourth of W, the load at P; take D C to represent one-eighth W, or half the load at C (fig. 8); take C E equal to C D, and C F to represent one-fourth the load of the tie-beam and ceiling, or half the strain down the king-post arising from the tie-beam.

Draw B *b* parallel to A C (fig. 8), and F *b* horizontal, meeting the former line in *b*; draw D *d* parallel to B *b*, and *b d* parallel to the strut S (fig. 8); draw E *e* parallel to the rafter B C (fig. 8), and draw the vertical line *d e*. Then B *b* represents the compression down the lower half of each principal, while D *d* is that down the upper half; *b d* is the compression down the strut, and *d e* is the tension in the king-post; the horizontal line F *b* represents the tension in the tie-beam. All these strains can therefore be measured accurately by the same scale as was used for the vertical line A F.

An account of this method, with an example worked out in detail, will be found in a paper on "Building Materials," by Capt. Seddon, R.E., read before the Royal Institute of British Architects on April 22nd, 1872, and published in the "Transactions."

For a roof of 20 ft. span the scantlings of the timbers when fir is used should not be less than as follow:—Tie-beam, 7 in. by 4 in; principals, 4 in. by 4 in.; struts, 4 in. by 2½ in.; king-post, 4 in. by 2½ in. at the smallest part, and 4 in. by 5 in. at the head and foot; purlins, 7 in. by 4 in.; common rafters, 4 in. by 2 in. For a span of 30 ft. the tie-beam should be 9 in. by 5 in.; principals, 6 in. by 5 in.; struts, 5 in. by 3 in.; king-post, 5 in. by 3 in. and 5 in. by 6 in.; purlins and common rafters as before. In this case there should be two purlins on each side between the ridge and pole-plate, otherwise the purlins and common rafters must be made stronger.

PERSPECTIVE.

SIR,—Some weeks ago there was a paper in the *Builder* on "Perspective as applied to Architectural Drawings," showing a simpler method than that taught in Schools of Art.

I am articled to an architect, and have obtain

my full Certificate from the Department of Science and Art, and should be obliged if the writer of that article would show me how his simple plan could be applied to the *plan* of a drawing, and I have no doubt there are other readers of the *Builder* who would be equally interested in knowing.

R. M. C.

*** The principle as illustrated was really of general application in perspective problems, but we will take an opportunity of illustrating its further application to plan. We hope student readers who wish for further information in regard to any subjects treated in this column will never scruple to ask questions, which we shall always be happy to answer to the best of our power.

Books.

British Mining. By ROBERT HUNT, F.R.S. London: Crosby Lockwood & Co. 1884.

IN his comprehensive treatise on the metalliferous mines of the United Kingdom, Mr. Robert Hunt has done ample justice to a subject of great importance, inasmuch as our minerals form a principal source of national wealth. Our mines are also of deep interest to the public at large, from the numbers employed in them and the capital embarked. The mines of England are among the oldest worked in the world, and have for many centuries been a field for the employment of honest labour and speculative capital, and from the earliest times when the Phœnicians came to our shores in search of tin, down to the present day, have been in constant activity, yielding large profits, and producing a mining population equal to any in the world, who have done more than any other miners in discovering and opening out the mineral deposits of new countries. With so vast and varied a subject it is not surprising that Mr. Hunt has written an interesting book, and with the opportunities he has had for obtaining correct information, in the capacity of secretary to the Royal Cornwall Polytechnic Society, and afterwards as Keeper of the Mining Records for many years he has been able to make his work not only interesting but useful, and instructive as well.

The volume is divided into four sections:—Historical Sketch, Formation of Mineral Deposits, Practical Mining, and the Future Prospects of British Mining.

The early history of mining in Cornwall is obscure and uncertain, as we have it carried down by tradition over long intervals of time, and the only records we possess of its past existence are the holes known as "Jews' pits," and the heaps of old refuse called "attal-Saracen." The so-called "Jews" of early times were probably Phœnicians, who may have owned and worked mines for tin. Certain it is that at a very early period the inhabitants of Cornwall were trading with Eastern people. After minutely chronicling the early events in the mining industry of Cornwall, Mr. Hunt says,—"The conclusion to which the examination leads us is that many centuries before the Christian era a trade had been established between the natives of Western Britain and Eastern Europe in the metal tin." Thus we must consider tin as the first article of commerce exported from England, and the Cornish miners the first traders in a country destined to become the greatest trading community of the world. The presence of tin gave to Britain a reputation for mineral wealth among the ancients which probably led to its conquest by Julius Cæsar. Certain it is that the Romans were in Britain, as in every country they conquered, active miners, and traces of their subterranean operations are to be found in every mineral field of the kingdom. Gold and silver were the metals most sought after by the Romans, and in England they knew of and possibly worked the gold-bearing rocks of North Wales, and certainly mined the lead mines extensively. They were in all countries energetic and successful miners, and worked underground to a remarkable extent, considering the total absence of mechanical aid. They have left evidences of their mining industry in the old mines of ancient Dacia (Transylvania), Italy, Spain, Portugal, Germany, and, in fact, in every country they ever occupied. In England they must have mined the iron ores very extensively, judging from the great heaps of cinders which were found in the Forest of Dean, and which are traced to their occupation. When they left England mining seems to have been in abeyance, and Mr. Hunt remarks, "After the departure of the Romans from Britain we have for a long period no light to guide us in our endeavour to trace the progress of mining." It may be also said that after the fall of the Roman Empire the art of mining languished all over Europe. During the Early Christian period and Middle Ages the mines were neglected for other pursuits. The monks were not miners. The wealth they acquired was not by burrowing in the earth. The knights and land owners of the Middle Ages did not encourage or value mining. In Domesday Book no mention is made of a mine, yet the tin trade had been long established, and the Stannary Court originated in the time of Athelstane (A.D. 950). The Stannaries, or rights to mine for tin, were in the gift of the Sovereign, and bestowed on court favourites until in 1376 the miners obtained the sanction of Parliament to their rules and regulations. But very little attention was paid to mining until the reign of Queen Elizabeth, who bestowed much attention on them. Among other things, she granted, by letters patent in 1564, permission to certain German mining adventurers to search for and work mines in several counties in England and Wales. These German miners were the first to introduce the divining-rod, which for many years was firmly believed in by the ignorant and superstitious. During the seventeenth century mining progressed, though slowly; but early in the eighteenth it received a great impetus by the introduction of the steam-engine, first in 1705 by Newcomen, improved by Trevethick, and perfected by Watt in 1777.

From the very interesting historical sketch the author passes on to and discusses the abstruse subject of the formation of mineral veins and the question of practical mining. With reference to the latter subject, every practical miner will agree with Mr. Hunt's declaration that, "notwithstanding the attention which has been directed to the laws regulating the deposits of metallic ores, it must be confessed that we are still without any certain guide to the presence of lodes beneath the surface of the earth." The phenomena connected with the existence of mineral deposits in the earth are such that science, based on observation and experience, has hitherto failed to methodise them under any fixed laws, and hence no general rules for the guidance of miners have been successfully laid down. It is really impossible to prognosticate the value of any vein or lode many fathoms in advance or in depth of the actual face which is being worked. Hence the elements of uncertainty and expectation which constitute the charm of mining, but at the same time introduce the chance-like character of results to be obtained from a commercial view. The discovery of lodes is mostly due to accident. In many cases springs of water indicate by their aspect and component parts the near presence of minerals, and frequently veins show at the surface in a decomposed condition. The German miners have a proverb, "There is no lode so good as that which wears an iron hat."

In recent times no new appliances have exerted so much influence as rock-boring machinery and powerful explosives. With these modern inventions time and labour are greatly economised. But the old stamp-mill still remains as perhaps the best of pulverisers in its improved form. It is mentioned in Agricola's "De Re Metallica," and is in the present day still employed in the newest gold-dressing plants.

In the last division of the book, "The Future Prospects of British Mining," Mr. Hunt reviews the gradual development of British mining, the necessary exhaustion of some of the fields, and the importation of foreign ores. It must, we think, be admitted that, with this array of facts before us, the prospects of British mining at present are not very promising. Mr. Hunt tells us that "the production of tin-ore, from surface-deposits, cannot much longer be regarded as likely to be of much value." And again, "The quantity of copper ore above 300 fathoms from surface cannot be large." The records of old workings show that the ore lying within easy reach of the surface has been worked out, and that we must be prepared to follow the ore veins to great depths in future. Mr. Hunt, in reference to this, remarks truly that "without great improvements in the principles of mining it will not be possible to work, at a profit, many of our deeper and more extensive mines."

We cannot leave this book without recommending it to all interested in mining. It is full of facts and information, admirably classified, and the text is assisted by numerous well-executed illustrations.

Die Lokomotiv - Feuerbüchse, gesammelt von JOHANN PECHAR. Vienna: Spielhagen & Schurich. 1844.

TECHNICAL education in this country is now happily receiving some of the attention it has long deserved, but when we consider the great efforts made in the same direction by the various nations in competition, much still remains to be done to enable us to maintain successfully our supremacy as manufacturers.

Our attention has been called to the matter by the number of technical books and publications issued on the Continent during the last few years, more especially in Germany, which has in addition translated many English standard works. These books, in most cases, deal not only with the scientific side of the various questions, but enter into practical details. We have one of these before us, "Die Lokomotiv-Feuerbüchse." This illustrates the different systems of constructing locomotive fire-boxes, with special reference to the consumption of smoke and economy of fuel. The author commences with a series of notices, with illustrations, of the different English systems of construction, but is apparently unaware that several of them are more or less obsolete. These are followed by others showing various plans pursued in America, France, Germany, and Austria, finally coming to the système Nepilly, which he especially advocates. Amongst the advantages claimed for this system may be mentioned that the atmospheric air necessary for combustion is raised to a considerable degree of heat before passing into the fire, thus allowing it to mix at once with the various gases, and so preventing in a large degree the formation of smoke. The fire-bars, furnace bridge, and draught can be readily adjusted to burn various kinds and qualities of coal to the best advantage, and the admission of the right quantity of air necessary for combustion regulated accordingly. The inclination of the adjustable fire-bars and bridge is altered as required by a lever worked from the foot-plate. Various tables are attached showing the results obtained from actual trials. The book consists of ninety-five pages only, and, even if we take some of the statements of results *cum grano salis*, it should still be of very considerable service to railway companies and others engaged in the construction or working of locomotive engines.

RECENT PATENTS.

ABSTRACTS OF SPECIFICATIONS.

260, Improvements in Fireproof Floors. H. H. Bridgman.

The principle of this invention is chiefly to prevent draughts or air-passages under the flooring by closing up all spaces below the boarding, thus greatly reducing the chance of fire or the danger of burning. At equal distances splayed wooden fillets are imbedded in concrete. These fillets rest on the iron joists, and are dovetailed into the concrete, the top of the concrete is brought up level with the top surfaces of the fillets. On this upper or top surface, a layer of mastic, such as asphalte, lime, and hair mixture, or other cohesive material or compound, is spread. As the successive portions of the surface are treated, the floor-boards are screwed or nailed on to the fillets. Of course, when grooved or tongued boards are used for the floor, nails or screws are not necessary, and the mastic material will serve to unite the whole of the floor substances in one thickness from the floor above to the ceiling below into a solid cohesive and compact mass. Felt, sand, or blown slag may also be used for filling up the floor. The space between the floor and the ceiling may be reduced. The gain in safety is very great, as thus the air-passages under the floor are closed, while the cost of construction has been ascertained to be less, all things considered, than that according to the present method of constructing concrete floors.

661, Improved Ventilator, Edward Woolfenden.

The points aimed at by this invention are simplicity and economy in ventilation. It is chiefly serviceable for workshops or large rooms. A metal casing is fixed in the roof of the building which contains a hollow metal tube or cylinder, the upper and outer end of which projects beyond the casing and terminates in a cap or cowl of the hood form with a feather or tail to keep the opening facing the direction of the wind. The metal tube is perforated at its lower end, and projects into the room, and it is closed near the bottom of the tube by a hinged door or valve which is opened or closed by a chain to admit more or less fresh air as required. The casing round the tube is open and projects down into the room to be venti-

lated. The hot or foul air passes from the room up through this space, and is free to escape under a rain cover into the open air.

108, Improvements in Ventilators. Thomas Jones.

Simplicity is here the point aimed at, to prevent them getting out of order, and at the same time to insure their perfect efficiency. One form is adapted to admit fresh air, and the other to draw off foul air. The apparatus for drawing off the foul air consists of a box or case made of cast iron, with a slot or orifice at or near the top of its front side, and a similar one at or near the bottom of the back. The case may be formed with a flange in front made the full width of the chimney, and of a depth equal to the thickness of the bricking of the chimney-breast to which it is to be applied. The orifices may be covered with fretwork and ornaments with any suitable design. A hole is cut in the chimney-breast at the top of the room to be ventilated, and the chamber or case inserted so that the front side is flush with the inside of the wall of the room, and the back flush with the inside of the chimney, all irregularities and cracks being filled up with plaster and cement. It is maintained that a ventilator so constructed will syphon or draw off the hot vitiated air in the top of the room, but will not permit the smoke to enter the apartment. A similar case or chamber is made and fixed for the admission of fresh air, but on this a perforated metal plate is adjusted to form divisions, and cause the air to flow to the outlet leading it to the apartment.

APPLICATIONS FOR LETTERS PATENT.

Oct. 31.—14,393, J. Stansfield, Manufacture and Laying of Asphalte.—14,398, G. H. Brown and A. Brown, Domestic Fireplaces.—14,430, A. B. Joy and J. J. Lewen, Making Imitation Marble.—14,443, A. Putney, Wood Flooring, Ceilings, and Dados.

Nov. 1.—14,463, E. L. Stacey, After-flush to Water-closets.—14,480, H. C. Gilchrist and C. Bellamy, Gas Pliers.—14,482, J. Peirce, Wood-planing Machine.—14,487, H. Thompson, Stoves and Grates.

Nov. 3.—14,511, F. Cuntz, Intermittent Flushing Apparatus.—14,514, W. Heatley and G. Hutchins, Raising or Lowering Builders' Materials, &c.—14,521, H. Curzon, Filtering Rain-water in its flow from Roofs to Tanks.—14,522, F. Jupp, Automatic Door-closer.

Nov. 4.—14,554, J. Trolley, Air-tide Ventilator.—14,567, G. Connell, Dormer Windows.—14,585, W. Buckwell, Boring and Excavating Apparatus.

Nov. 5.—14,611, J. Howard, Automatically Regulating the Closing of Doors.—14,614. W. Corteen, Opening and Closing Windows.—14,616, E. Shrimpton, Glazing Roofs, &c.—14,618, A. Parkinson, Stench Traps.—14,621, J. Hatfield, Manufacture of Artificial Stone.

Nov. 6.—14,648, J. Samuel, Metallic Roofing Slate.—14,687, W. R. Lake, Supplying Fresh Air to Dwelling-houses.

PROVISIONAL SPECIFICATIONS ACCEPTED.

2,984, F. George, Connexions for Lead Pipes, &c.—11,718, R. Stanley, Chimney Tops or Ventilators.—12,942, J. Dixon and C. J. Appleby, Links for Roofs.—13,016, A. G. Browning, Flushing Cisterns for Water-closets.—13,181, J. Rogers, Temporary Closing of Openings in Fireproof Partitions.—13,339, J. S. Bruce, Apparatus for Opening, Closing, and Locking Ventilators and Casements.—13,355, W. Smith, Waterproof Cement.—13,375, J. Main, Iron or other Metallic Roofs.—13,389, H. Smith and D. Smith, Window Fasteners.—13,626, E. Wood, Composition for Washing and Renovating Stonework.—13,684, S. Pooley, Machines for Sawing Timber.—13,700, G. Coultas, Pipe Joints.—13,779, J. Walker, Attaching Door-knobs to their Spindles.—13,907, E. Newman, Window-sash Fastener.—14,010, H. J. Cooper, Manufacture of Portland Cement.—13,379, A. Cuff, Improvements in Balconies.—13,430, P. A. Ames, Construction of Ceilings, &c.—13,364, C. Conzaga, Veneers.—13,692, A. L. Dennison, Cutting Wood for Parquetry and Marquetry Work.—13,914, J. James and C. James, Machinery for Sawing or Cutting Wood.—13,915, P. Rees, Protecting the Edges of Saws and other Tools when not in use.

COMPLETE SPECIFICATIONS ACCEPTED.

Open to opposition for two months.

46, E. L. Garbett, Fireproof Building.—953, W. E. Baker, Plastering Machines.—1,707, E. W. Harding, Manufacture of Portland Cement.—1,874, J. Swindells, Slotting Wood transversely or diagonally.—1,884, H. J. Johnson, Manufacture of Portland Cement.—13,021, A. McMillan, Door-springs.—13,053 and 13,054, W. H. Lindsay, Girders for Fireproof Structures.—1,200, P. Scholes, Construction of Fireproof Floors and Ceilings.—1,427, F. Brown, Window-sash Fasteners.—2,173, T. Atkins, Fixing Knobs, Handles, &c., to their spindles.—2,377, W. Beddows, Chimney-pots.—3,363, J. Elliott and F. J. Parsons, Manufacture of Artificial Stone, Paving Slabs and Blocks.—5,222, J. C. Bothams, Chimney-tops.

RECENT SALES OF PROPERTY.

November 6.

By Newbon & Harding.

Finchley—Elm Park-road, five plots of freehold land	£400

By Marsh, Milner, & Langton.

Brompton—Edith-grove, Ground-rents of 42*l.* a year, reversion in 42 years	1,480
Fulham-road, Ground-rents of 34*l.* a year, reversion in 42 years	1,255
Twickenham—Ford-place, five freehold and copyhold cottages	800
The Reversion to one-fifth share of leasehold houses, yielding 384*l.* 8s. a year, and to 650*l.* cash, life aged 81 years	250

November 7.

By Herring, Son, & Daw.

Clapham—Thornton-road, Westfield House, and 3¾ acres, 40 years, ground-rent 62*l.*	2,125

November 11.

By W. B. Hallett.

Newington-causeway—29 to 43 odd, Uxbridge-street, 24 to 30 even, Devonshire-street, 13, 14, and 15, Linwood-place, and a ground-rent of 12*l.* a year, 25 years, ground-rent 52*l.* 18s.	1,230
Harrow—Palmerston-road, The Poplars, freehold	560

By H. A. Cox.

Bermondsey—32, Jamaica-road. 33 years, ground-rent 4*l.* 10s.	420

By Ventom, Bull, & Cooper.

Lillie-bridge—Lillie-road, Ground-rent of 10*l.* a year, reversion in 48 years	255

By Debenham, Tewson, Farmer, & Bridgewater.

Lindfield, Sussex—The Finches, and 26a. 3r. 29p. freehold	17,100
Brixton—1 to 5, Townley-cottages, freehold	1,100
London Docks—80, 81, and 82, Pennington-street, freehold	695

By — Cronks.

Chiddingstone, Kent—Little Sidcup farm, about 8 acres, freehold	800
Hartley, Kent—A plot of freehold land, 4a. 1r. 22p.	85

November 12.

By J. P. Lash.

Limehouse—2, 3, and 4, Wilson's-place, freehold	580
South Hackney—25, Cassland-crescent, 61 years, ground-rent 8*l.* 8s.	520

November 13.

By T. Dann.

Westminster—13, Great Queen-street, freehold	4,700

By Newbon & Harding.

Islington—127 and 129, Upper-street, freehold, area 5,500 ft.	3,380
Highbury—149, Petherton-road, 65 years, ground-rent 7*l.* 7s.	670
Upper Holloway—42, Kingsdown-road, 74 years, ground-rent 6*l.* 6s.	360
59, Cromwell-road, 85 years, ground-rent 6*l.*	155
Hampstead—57, Gayton-road, 84 years, ground-rent 8*l.*	780

By E. Stimson.

Clapham—6, Gaskell-road, 77 years, ground-rent 5*l.*	320
Camden-town—13, Lyme-street, 54 years, ground-rent 8*l.*	560
Islington—8, Albert-street, 63 years, ground-rent 6*l.*	340

By C. C. & T. Moore.

Mile-end—12, Chapel-terrace, 58 years, ground-rent 3*l.* 10s.	380
Leytonstone—5, Albert-terrace, The Ruby Beer-house	400
Stratford—25, Manbey-grove, 478 years, ground-rent 3*l.* 5s.	315
Bermondsey—26-33, Hickman's Folly, freehold	800
St. George's-in-the-East—1-9 odd, Yule-court, 48 years, ground-rent 17*l.* 10s.	215
17 and 19, Watney-street, 13 years, ground-rent 16*l.*	210
Ratcliff—5, White Horse-street, freehold and copyhold	345

By C. D. Field & Son.

Bermondsey—44, Frean-street, 32 years, ground-rent 1*l.* 10s.	170
10-13, Drappers-road, 52 years, ground-rent 18*l.*	1,100
16, 21, and 23, Drummond-road, 49 years, ground-rent 4*l.*	560
25-31 odd, Drummond-road, 49 years, ground-rent 8*l.*	705
Rotherhithe—76 and 78, Rotherhithe-street, freehold	560
Croydon—Thornton-road, Chestnut Cottage, freehold	700
Thornton-road, Vine Cottage, freehold	175
A Plot of Freehold Land	200

By S. Walker & Runtz.

Bayswater—98, Norfolk-terrace, 59 years, ground-rent 7*l.* 7s.	700
St. George's-in-the-East—19 and 19A, William-street; 15, 17, and 19, Samuel-street; and 1, 2, and 3, Elijah-cottages, 17 years, ground-rent 32*l.*	580

MEETINGS.

Monday, November 17.

Royal Institute of British Architects.—Mr. Hugh Stannus on "The Architectural Treatment of Cupolas in general, and that of St Paul's in particular." 8 p.m.

Leeds and Yorkshire Architectural Society.—Mr. J. Wreghitt Connon on "The Royal Institute of British Architects."

Tuesday, November 18.

Institution of Civil Engineers.—Discussion on Mr. Jamieson's paper on "Electric Lighting for Steamships." 8 p.m.

Statistical Society.—Inaugural address by the President, Sir Rawson W. Rawson. 7.45 p.m.

Wednesday, November 19.

British Archæological Association.—(1) Mr. C. H. Compton on "The Roman Bridge recently discovered in the River Trent." (2) Mr. C. Lynam on "The Excavations of Hulton Abbey." 8 p.m.

Society of Arts.—First meeting of the 131st Session. Opening Address by Sir Frederick Abel, Chairman of Council. 8 p.m.

Royal Meteorological Society.—(1) Mr. Hugo Leupold on "A new Method of reading the direction of the Wind on Exposed Heights and from a Distance." (2) Mr. Alfred N. Pearson on "A Component Anemograph." (3) Mr. C. C. Walker on "The Injury by Lightning (April 28, 1884) to the Duke of Sutherland's Monument at Lilleshall." (4) Col. the Hon. Arthur Parnell on "The Mechanical Characteristics of Lightning Strokes." 7 p.m.

Friday, November 21.

Architectural Association.—Mr. George Aitchison, A.R.A., on "The Prospects of Architecture." 7.30 p.m.

Miscellanea.

Architecture in Relation to Landscape Gardening.—The sixth and concluding lecture on the above subject was delivered by Mr. G. Richards Julian, A.R.I.B.A., at the Crystal Palace School of Art on Wednesday afternoon. In continuation of that part of his subject which dealt with garden decorations to harmonise with Renaissance buildings, gate piers, bridges, fountains, pavilions, and seats were in succession considered. Modern architecture, commencing with the Greek revival, and tracing the influence of Sir Charles Barry and his introduction into England of the astylar form of the Early Renaissance, was then described, and followed by a short account of the Gothic revival. Coming to our own day, the rise of the so-called "Queen Anne" revival was reviewed, and present tendencies alluded to. In connexion with this, the lecturer said, "There is a strong feeling afloat that any system of design that may be attempted must be one founded on a due recognition of the needs, the habits, and the social circumstances of the nineteenth century." Mr. Julian then expressed his great satisfaction with the protest, which appeared in a letter from Mr. E. J. Tarver in last week's *Builder*, against the proposed execution of sham mediæval work in the building to be added to the side of Westminster Hall. Modern architecture in France was then described, from the time of Louis XV. to the present day. Defining the aim of the art of architecture as being, in common with all the fine arts, "the expression of that sense of beauty which is a part of human nature," the lecturer went on to point out that the lessons to be learned from a study of the history of architecture were,—that if we would be real artists we must be true,—true to ourselves and to the age in which we live. At the close of the lecture, the Principal of the School of the Art of Landscape Gardening, Mr. H. E. Milner, A.M. Inst. C.E., said that he thought on this occasion they must depart from their usual rule and give Mr. Julian a vote of thanks for his interesting lectures.

Builders' Benevolent Institution.—We would commend to the notice of our readers the work of the Builders' Benevolent Institution, some account of which will be found on another page. The Institution has now been in existence for nearly forty years, and has done much good work, but expression has more than once been given to the feeling that it is not so largely supported as it deserves to be by the class for whom it is specially intended, viz., "masters who have been engaged in the building trade and its branches." Some of the risks which are attendant on the pursuit of business by master builders were alluded to by Mr. Ewan Christian, in his speech at their dinner the other evening. The presence of the President of the Institute of Architects on this occasion, and the genial tone of his remarks, were much appreciated by the members of the trade who were present. We understand that a special appeal in aid of the funds of the Institution is about to be made to master builders.

The Royal Arms.—Mr. James Hill, of Queen Victoria-street, E.C., whose locks and patent door-furniture have been for many years largely used by her Majesty's Office of Works and other departments of the Government, has just received official intimation from the Lord Chamberlain authorising him to use the royal arms, coupled with the words "By Appointment to the Queen."

Public Buildings.—Her Majesty's Office of Works have placed the contract for the next three years and a half for the general repairs to all the Palaces, Houses of Parliament, Courts of Justice, Post-offices, and civil buildings generally in the London District, in the hands of Messrs. Perry & Co., of Tredegar Works, Bow.

Accident at the Midland Railway Extension Works, Birmingham. — What might have been an alarming and fatal accident if it had happened during working hours, occurred about 3.30 A.M. on Sunday last at the above works. As it is, it has had no worse effect than to stop the traffic on the Birmingham and Worcester Canal for a time and to fill the railway works with water and *débris*. The canal comes through that part of the town at a high level, and is carried on arches, having a street called the Gullet below. The new railway tunnel runs parallel to this street and at right angles to the canal, and the contractors, Messrs. Firbank, have been obliged to destroy a considerable section of the old water-way and arching to make room for the new tunnel and other works below; but, for the purpose of enabling the traffic on the canal to be continued, they have formed timber aqueducts of just sufficient width to allow of the passage of one boat at a time, with a passing place in the middle of its length. The water in the canal was well stanked or dammed up with sheet piling and puddled clay. But as the excavations here go a depth of some 30 ft. to 40 ft., the whole of the ground adjoining has shifted, and on Sunday morning, when a boatman was taking through his boat, the stank gave way, and let the water of the canal into the works. A provision had been made for such a contingency by having at each end of the aqueduct planks fitted in grooves to stop the water; but one of these barriers had been taken out to allow the boat to pass, consequently the canal emptied itself to the Barr Lock Gates, a distance of some 500 yards, filling the workings, which are still blind at each end, about 25 ft. deep with water and some 200 tons of soil.

Output of Coal in New South Wales.—The total output of the New South Wales collieries for 1883 exceeded 2½ million tons, the exact figures, 2,521,457 tons 1 cwt., being 412,175 tons in excess of the output for 1882, the average price per ton in 1883 being 9s. 6·40d., as against 8s. 11·97d. per ton in 1882. There has been considerable activity in the search for coal during the year, and there is reason to believe that several new collieries will shortly be opened up. A new coal company has been formed, and has started working a seam of coal between four and five miles from the Mittagong Railway Station; and one has been formed to work a coal seam about three miles from the Erith Colliery; the seam is said to be 7 ft. or 8 ft. thick, and a seam of coal, 5 ft. thick, has been struck by boring about one mile south of the Erith Colliery. The Berrima Coal Company, while working the upper seam, is boring for another seam of coal some 60 ft. or 70 ft. deeper. A seam of coal is reported to have been discovered at Bungawalbyn, about twenty-five miles from Lismore, but nothing has been done on it yet. A seam of coal, 2 ft. thick, containing 15 in. of good bright clean coal, was passed through at Grafton, at a depth of 183 ft., while boring for water. Coal of the best quality, and in very large quantities, is said to exist in the Coolah Valley.—*Iron*.

Birmingham Architectural Association. The annual *conversazione* of this Association was held last week, at Queen's College, to inaugurate the opening of the eleventh session. There was a large loan collection of drawings from London in addition to those contributed by members, together with specimens of tapestry, wrought-iron, and other materials of architectural interest. The president, Mr. F. B. Osborn, opened the proceedings with an inaugural address, in which he entered minutely into the work of the various classes and the general progress of the Association. The following is the list of officers for the ensuing session:—President, F. B. Osborn, F.R.I.B.A.; Committee: Chairman, W. H. Kendrick; ordinary members of Committee, O. Essex, A.R.I.B.A., F. G. Hughes, A.R.I.B.A., C. E. Bateman, T. W. F. Newton, F. E. F. Bailey, A.R.I.B.A., H. H. McConnal, A.R.I.B.A, E. Wood; Hon. Treasurer, A Reading, A.R.I.B.A.; Hon. Librarian, A. Hale; Hon. Secretary, Victor Scruton, 13, Corporation-street, Birmingham.

Sanitary Assurance Association. — At the ordinary Council meeting of this Association, held at 5, Argyll-place, W., on Monday last, Sir Joseph Fayrer in the chair, it was arranged for four lectures to be given on sanitary subjects during November and December, to which admission will be free.

New Club Buildings in Piccadilly.—On the north side of Piccadilly, not far from Hyde Park Corner, and overlooking the Green Park, an extensive block of buildings, designated the Badminton Club, is at present in course of erection. The buildings cover a ground area of 8,000 ft. The Piccadilly elevation is in Portland and Bath stone, and is 88 ft. in height to the apex of a bold and lofty gable, flanked with carved finials, at the east end of the frontage. The building contains five floors, the central portion of the ground-floor, to the depth of between 35 ft. and 40 ft., consisting of a large shop. The first, second, and third floors have mullioned bay windows, with balconies. The fourth floor is lighted by dormer windows. The entrances lead to a flower court on the ground-floor at the bottom of the central area or well-hole. It is 27 ft. square, and is intended to have a floor paved with mosaic. Adjoining are several bath and dressing rooms, whilst at the rear is a servants' hall, together with kitchens and other apartments connected with the cuisine. On the first floor is the morning-room, an apartment overlooking Piccadilly, 38 ft. by 35 ft., and immediately to the rear, on each side of the octagonal open space above the flower court, are the card-room and smoking-room. At the extreme rear of this floor is the coffee-room, a lofty apartment 48 ft. in length, and 26 ft. in width, which is intended to be very richly decorated. The second, third, and fourth floors have each two sitting-rooms at the Piccadilly frontage, and there are besides upwards of forty bedrooms. The members' and strangers' billiard-rooms are on the second-floor. Mr. R. W. Edis, of Fitzroy-square, is the architect, and Mr. T. Boyce, of the Eagle Works, Hackney, is the contractor. Mr. Gregory is clerk of the works, and Mr. Brunton the foreman.

"International Exhibition. London, 1885."—Under this title an exhibition is to be held at the Alexandra Palace next year, commencing about the 31st of March next, and remaining open for six months. A prominent feature in the prospectus is that 10 per cent. of the gross receipts from admission-money is to be set apart for distribution amongst the principal London hospitals. For this purpose a committee, composed of the following gentlemen, has been appointed:—Colonel Sir Herbert Sandford, R.A. (chairman), Admiral Sir Edward Inglefield, C.B. (vice-chairman), General Sir Michael Kennedy, K.C.S.I., Sir Henry Pitman, M.D., Sir Andrew Clark, bart., M.D., F. D. Dixon-Hartland, esq., M.P., and George Johnson, esq., M.D. The Exhibition, like those at South Kensington, will not rely simply upon the attractiveness of the exhibits, but will include amusements of a varied nature. The building and grounds are to be brilliantly illuminated by the electric light.

Glasgow Philosophical Society. — A meeting for the election of office bearers in the Sanitary Section of the Philosophical Society of Glasgow was held on the 5th inst., Dr. James Christie, A.M., in the chair, who was re-elected President for another year. Mr. W. P. Buchan was elected vice-president in room of Mr. Kenneth Macleod, whose term of office had expired. He was elected a member of Council. Dr. Eben. Duncan, past-secretary, was also elected a member of Council, the new secretary being Mr. William Church, jun. Dr. Christie promised to deliver his presidential address, on zymotic diseases, during the winter, and remarked that he fully expected that Glasgow would be visited by the cholera shortly, and that to make its visit as short and harmless as possible good sanitary precautions must be persevered in.

West London School of Art.—In connexion with this school, a travelling studentship, of the total value of 50*l*., is offered by the Painters' Company, from a fund given by Mr. William List, liveryman of that company, for the encouragement of the study of coloured decoration. The conditions of the competition may be obtained on application to the Headmaster (Mr. John S. Rawle), at the School, 155, Great Titchfield-street.

Dimensions.—A correspondent in the building trade suggests that dimension-books of every class should be spaced with columns for time of day, wind, weather, and other natural conditions at the time of measuring. There is no doubt the statistics so collected would be very interesting, and probably in the long run useful, but we fear few practical measurers would be properly grateful for such an increase in the bulk of the measuring-book.

Stamp Duty.—We have received an official notice from the Commissioners of Inland Revenue, Somerset House, calling the attention of house agents, builders, and the public generally, to the law regulating the stamp duty on agreements for letting lands and unfurnished houses. From this notice it appears that such agreements are chargeable, not, as is often supposed, with the uniform duty of 6d. applicable to ordinary agreements under hand, but with the same rates of duty as if they were actual leases for the term and consideration mentioned, according to the following scale (if the term is definite, and does not exceed thirty-five years, or is indefinite):—

Not exceeding 5*l*. per annum	£0	0	6
Exceeding 5*l*. and not exceeding 10*l*.	0	1	0
„ 10*l*. „ „ 15*l*.	0	1	6
„ 15*l*. „ „ 20*l*.	0	2	0
„ 20*l*. „ „ 25*l*.	0	2	6
„ 25*l*. „ „ 50*l*.	0	5	0
„ 50*l*. „ „ 75*l*.	0	7	6
„ 75*l*. „ „ 100*l*.	0	10	0
Exceeding 100*l*., for every full sum of 50*l*., and also for any fractional part of 50*l*. thereof..	0	5	0

Such agreements, if not drawn upon stamped paper, must be presented for stamping within two months after the date of the first execution thereof. After that time, a penalty of 10*l*. may be imposed. An unstamped or insufficiently stamped agreement cannot be enforced in any Court of Justice, or before any arbitrator or other competent authority. A lease made subsequently to, and in conformity with, an agreement duly stamped is chargeable with the duty of 6d. only. Postage-stamps cannot be used for stamping agreements for letting lands and unfurnished houses (other than dwelling-houses, or any part thereof, for any definite term less than a year, where the rent does not exceed 10*l*.), but such agreements must either be taken to Somerset House to be stamped with the proper impressed stamp, or be left for that purpose at the office of a Distributor or Sub-Distributor of Stamps, or of a Postmaster.

Liverpool Engineering Society.—At the meeting held on the 5th inst., at the Royal Institution, Colquitt-street, Mr. R. R. Bevis, jun., president, in the chair, a paper was read by Mr. W. E. Mills on "Steam as a Mode of Heating." The author began his subject by pointing out the advantages possessed by steam over hot water as a mode of heating large buildings. Steam, from its own elasticity, would permeate every part of the system of pipes in which it was employed equally, while water, being itself inert, required power to drive it, especially if the length of piping was at all extensive, and this involved the use of a boiler of considerable dimensions. Owing to the severity of the winters in America rendering some means of artificial heating absolutely necessary, even in dwelling-houses and buildings of moderate dimensions, more powerful than a hot-water apparatus could supply, steam had been adopted in that country to a great extent.

Building Stone in Queensland.—A correspondent writes:—"Hitherto, in the absence of any good building stone within a reasonable distance from Brisbane, it has been the practice to employ bricks, covered with cement to imitate stone, or, when a public building is erected, stone has had to be imported at considerable expense from New Zealand or New South Wales. Within the last few months, however, some excellent building stone has been discovered within fifty miles of Brisbane, upon the estate of Mr. Robt. Wm. Le Grand, J.P., at Wooyumboong, while excavating some cellars for a new house. This stone has been reported upon by the public analyst, and pronounced to be of a very durable and non-friable nature, so there is every prospect of its speedily taking the place of the stucco now so commonly employed. Bricks are now fetching from 40s. to 50s. per 1,000, and cement is selling at 16s. to 17s. 6d. by cask of 400 lb."

Society of Arts.—The first meeting of the hundred and thirty-first session will be held on Wednesday next, when the opening address will be delivered by Sir Frederick Abel, Chairman of the Council. Among the Cantor lectures promised for the ensuing session are series on the "Use of Coal Gas," by Mr. Harold B. Dixon; on "Artists' Colours," by Mr. J. M. Thomson; and on "Carving and Furniture," by Mr. J. Hungerford Pollen.

The Supply of Teak.—A special prize of 50*l*. has been awarded by the Executive Committee of the International Forestry Exhibition to Mr. W. T. Oldrieve, of H.M. Office of Works, Edinburgh, for his essay upon "Maintaining the Supply of Teak."

Bedminster (Bristol).—The corner and memorial stones of the new schools in connexion with Hebron chapel have been laid. The premises are intended to accommodate 1,000 scholars. The site is at the back of the present chapel, and, extending out to Sion-road, has a frontage of 40 ft., the depth to the chapel being 116 ft. On the ground-floor there is to be a large room open to the roof, 71 ft. by 25 ft. Here will be the secretary's room, library, boys' and girls' entrances, &c. The first floor is to be arranged in two tiers, providing fifteen class-rooms. The front of the new building will be in the Elizabethan style, and the whole will be built of brick with freestone dressings. Mr. A. H. Beaven has accepted the contract for 3,295*l*.

Examination of Local Surveyors and Inspectors of Nuisances.—At an examination held by the Sanitary Institute of Great Britain on the 6th and 7th of November, twenty-seven candidates presented themselves,—eight as local surveyors, and nineteen as inspectors of nuisances. The Institute's Certificate of Competency to discharge the duties of local surveyor was awarded to Messrs. B. R. Phillipson, J. Eworth, and Gilbert Thomson; and Certificates of Competency to discharge the duties of inspectors of nuisances to Messrs. W. Daley, J. Brooks, J. Houghton, J. Keal, T. Wheat, W. Fraser, J. Loach, J. Marshall, F. S. Winser, J. T. Simpson, A. H. Rollinson, and Ben. Potter.

Fire-resisting Floors.—We have received from Mr. H. H. Bridgman, the architect for the new block of the St. Pancras Workhouse, a report made by Captain Shaw, at the request af the St. Pancras Board of Guardians, on the fire-resisting qualities of the building, which is floored on Clark & Bunnett's "Ligno-concrete" system. Captain Shaw reports very favourably of this and of the fire-resisting properties of the building generally. The St. Pancras Guardians, in asking for a special report by the chief officer of the Fire-brigade, have set an example which might well be followed in similar cases.

Fire at a Builder's.—Early on Thursday morning last, a fire occurred on the premises of Messrs. J. Simpson & Son, builders and contractors, Paddington-street. A building, 50 ft. by 30 ft., and workshops and stacks of timber in the yard, were destroyed.

The Patent Laws.—At a meeting of the executive council of the Inventors' Institute, held at their rooms, Lonsdale-chambers, Chancery-lane, on Monday last, it was resolved "that the first meeting in every month should be devoted to the consideration of the Patents, Designs, and Trade Marks Act of 1883; that the Act should be gone through regularly by sections; and that a report should be drawn up of the result of the discussions; and that visitors should be invited to attend these meetings. The first meeting for the consideration of the Act will take place on Monday, December 8th.

Hydraulic Power.—Messrs. Clark, Bunnett, & Co., Limited, have just completed fixing their hydraulic lifts to the General Post-offices at Manchester and Liverpool, and have received instructions from the Corporation of Birmingham to fix one of these lifts at the Smithfield Market, Birmingham. —— Messrs. Archibald Smith & Stevens, of Queen's-road, Battersea, have been instructed to erect, for Messrs. Spiers & Pond, at the Windmill Restaurant, Cannon-street, one of Stevens & Major's patent hydraulic suspended lifts, to be worked in connexion with the Hydraulic Power Company's mains.

Hampton's Home for Indigent Blind People.—This institution, situate at Putney Bridge-road, appears to be doing a good work. Provision has lately been made for fifty additional beds for aged blind persons without means, and we are informed that the recipients of its benefits include members of all branches of the building trades. The committee are making strenuous efforts to extend the work, but for this funds are needed. As will be seen by an advertisement in our present issue, a concert in aid of the institution is to be held at the Horns, Kennington, on Wednesday next.

Leeds and Yorkshire Architectural Society.—At the second meeting of this session, on the 17th, Mr. J. Wreghitt Connon will read a paper on "The Royal Institute of British Architects." Among further papers announced are "English Homes in the Seventeenth Century," by Mr. J. A. Gotch (January 12th); "Architectural Competitions," by Mr. Cole A. Adams (February 23rd); and "The Architecture of the Last Half-Century," by Mr. Walter Smith (March 23rd).

CONTRACTS AND PUBLIC APPOINTMENTS.

Epitome of Advertisements in this Number.

CONTRACTS.

Nature of Work, or Materials.	By whom required.	Architect, Surveyor, or Engineer.	Tenders to be delivered.	Page.
Street Watering Posts, &c.	Southend Local Board	A. Clayton	Nov. 17th	ii.
Blue Guernsey Granite and Siftings	Dover Town Council	*Official*	Nov. 18th	ii.
Main Sewerage Works	Blackpool Corporation	T. Sunderland	Nov. 20th	xx.
Fittings for Sorting Office, Liverpl. Post-Office	Commissnrs. of Works	*Official*	Nov. 24th	ii.
Making up Roads	Wandsworth B. of Wks.	do.	Nov. 25th	ii.
Broken Granite	Southgate Local Board	C. Griffin Lawson	do.	ii.
Paving	Greenwich Bd. of Wks.	*Official*	Nov. 26th	ii.
Wrought-Iron Girder Bridge	do.	do.	do.	ii.
Wrought-Iron Fencing	Lyndhurst Burial Brd.	do.	do.	ii.
Pipe Sewer	Bexley Local Board	E. R. Boulter	do.	ii.
Engine and Boiler Houses, &c.	St. Helen's Corporatn	D. M. F. Gaskin, C.E.	Nov. 28th	ii.
Erection of Infants' School, &c.	St. Ives School Board	E. W. Robb	Nov. 29th	ii.
Enlargement of Sub-District Post-Office at Peckham	Commissnrs. of Works	*Official*	do.	i.
New Museum, Chester	.....	Thos. M. Lockwood	do.	ii.
Erection of Club-House, Neath	Neath Constitutnal Club	.....	Dec. 1st	xx.
Reservoir Tank and Drainage Wrks. S'thmptn	Commissionrs of Works	*Official*	do.	ii.
Main Drainage Works	Acton Local Board	do.	Dec. 2nd	ii.
Completion of New Infirmary	Paddington Guardians	A. & C. Harston	Dec. 10th	ii.
Erection of Five Houses, Stepney	.....	C. A. Legg	Not stated	xx.

PUBLIC APPOINTMENTS.

Nature of Appointment.	By whom Advertised.	Salary.	Applications to be in.	Page.
Assistant Surveyor	Finchley Local Board	100*l.* per annum	Nov. 22nd	xviii.

TENDERS.

For the erection of new house in Mapesbury-road, Brondesbury, for Mr. Thomas Brock. Mr. C. Styche, architect:—

W. Hodgson	£3,340 0 0
Rider & Son	2,868 0 0
H. B. Oldrey	2,840 0 0
S. J. Dainton	2,795 0 0
G. & W. Watson	2,787 0 0
W. Oldrey	2,600 0 0
A. Harris	2,553 0 0
W. Taylor & Co. (accepted)	2,444 0 0

For taking down 174, Commercial-street, Newport (Mon.), and erecting thereon shop and offices. Mr. E. A. Lansdowne, architect. Quantities supplied:—

J. Linton, Newport	£2,789 0 0
Jones & Co., Gloucester	2,650 0 0
Forse, Bristol	2,600 0 0
C. Miles, Newport (accepted)	2,379 0 0
W. Blackburn, Newport	2,298 0 0

Accepted for the erection of "Barrack" buildings at Plymouth, for the Salvation Army. Mr. E. J. Sherwood, architect and surveyor, 101, Queen Victoria-street. Quantities by architect:—

Isaac Foot, Notte-street, Plymouth	£2,150 0 0

[Architect's estimate, £2,127.]

For "Barracks," Batley, Yorkshire, for the Salvation Army. Mr. E. J. Sherwood, architect. Quantities supplied:—

Wm. Holt, Cheetham, Manchester	£1,750 0 0
E. Chadwick & Sons, Staincliffe, Dewsbury	1,616 0 0
Parker & Sharp, Bradford-road Batley	1,599 9 4
Garthwaite & Blackburn, Halifax-road, Dewsbury	1,532 15 2
Henry Brooke, Knottingley Wells, Batley*	550 10 0

* Joiners' and carpenters' work only.

For alterations and new fittings to the ground floor of the Alfred's Head public-house, Newington-causeway, for Mr. H. R. Cope. Mr. C. Barnard, architect:—

	Alterations.	Mahogany Bar Parlour.
Shurmur	£342 0 0	£243 0 0
F. W. Gill	315 0 0	263 0 0
Canning & Mullens	305 0 0	255 0 0
Mower	275 0 0	280 0 0
J. Beale	299 0 0	240 0 0
W. & F. Croaker (accepted)	290 0 0	195 0 0
Sanders & Son	—	370 0 0
Warne	—	232 0 0
Heath	—	259 0 0

Counter and Pewterers' Work.

Sanders & Son	£247 0 0
Warne	245 0 0
Heath (accepted)	197 0 0

For proposed public hall, Greenwich. Mr. W. Rickwood, architect. Quantities supplied:—

Mower	£2,986 0 0
Proctor	2,611 1 3
A. White & Co.	2,420 0 0
Staines & Son	2,346 0 0
Pack Bros.	2,145 0 0
R. & O. Evans	2,139 0 0
Lonergan	2,135 0 0
H. & L. Holloway	2,115 0 0

For paving Ravensbourne-street, for Greenwich Board of Works, as a new street:—

Marshall	£790 0 0
Woodham & Fry	649 0 0
Mowlem & Co. (accepted)	648 0 0

For making new road at Walthamstow. Messrs. H. & F. Houghton, surveyors, Old Broad-street:—

Pound	£490 7 0
Bloomfield	435 0 0
Wilson	410 0 0
Bell	355 0 0
Woodham & Fry (accepted)	324 0 0

For alterations to the Globe, Goldsmith-row, Hackney-road, for Mr. F. Herbert. Mr. Edward Brown, surveyor, Hanbury-street, Spitalfields:—

Kiddle & Sons	£500 0 0
J. Anley	496 0 0
J. C. Christopher	489 0 0
C. Marr (accepted)	432 10 0

For restoring the Coat and Badge, Chrisp-street, Poplar, for Messrs. Truman, Hanbury, Buxton, & Co. Mr. Ed. Brown, surveyor:—

C. Marr	£510 0 0
D. D. & A. Brown	500 0 0
S. Salt	420 0 0
S. W. Hawkings (accepted)	392 0 0

For pulling down one and making alterations and improvements to five cottages on the new Malden Estate, Surrey, for the Trustees of the estate. Mr. J. R. Gover, architect:—

Scharien & Williams	£856 0 0
Jones & Edwards	795 10 0
Wood & Co.	777 0 0
Davis	725 0 0
Saunders & Co.	625 0 0
Knapton & Harding	550 0 0
Stewart & Co.	525 0 0
Warr	425 0 0
Robinson & Miller	385 0 0
Hayes	375 0 0
J. Robinson	360 0 0
Clissold (accepted)	350 0 0

For cottage residence, Send Tannery, near Woking, Surrey, for Mr. Samuel H. J. Ashford. Messrs. Peak, Lunn, & Peak, architects, Guildford:—

T. E. Downes, Guildford	£476 0 0
Whitburn, Woking	475 10 0
Christmas, Ripley	460 0 0
Shears, Woking	398 0 0
Banham, Stoughton (accepted)	357 10 9
Wilson, Woking (withdrawn)	313 0 0

For pair of cottages and small stable, &c., Martyr-road, Guildford, for Mr. R. Shillingford. Messrs. Peak, Lunn, & Peak, architects:—

Butt, Woking	£925 0 0
G. & R. Smith, Guildford	720 0 0
Strudwick, Guildford	720 0 0
Billimore & Smith, Guildford	713 0 0
Tribe & Robinson, Guildford	694 19 6
Sayers, Guildford	693 0 0
Glew, Worplesdon	690 0 0
Skuse, Guildford	675 0 0
Elliott, Guildford	595 0 0
Currington & Peto, Guildford*	575 0 0
Banham, Stoughton (withdrawn)	519 10 0

* Accepted.

For new entrance lodge, Summersbury, Shalford, near Guildford, for Mr. Edwin Ellis. Messrs. Peak, Lunn, & Peak, architects. Quantities supplied:—

Pink, Milford	£474 0 0
Wells, Bermondsey	445 0 0
Mitchell Bros., Shalford (accepted)	385 0 0

For rebuilding 58, Broad-street, Ratcliff. Mr. J. Sargeant, architect. Quantities supplied:—

Deacon	£800 0 0
Parker	731 0 0
Hack	692 0 0
Richards	692 0 0
A. White & Co.	687 0 0
W. Holt	659 0 0
Oliver	657 0 0
Jones & Edwards	641 0 0
Doughty	606 0 0
Scharien & Williams	6[illegible]4 0 0
Weir	584 0 0

For the construction and erection of a Propagating House at the Abbey Park, Leicester, for the Corporation of Leicester. Mr. J. Gordon, Borough Surveyor:—

Bowles & Son, Leicester	£230 5 0
T. D. Brown, Leicester	225 10 0
Messenger & Co., Loughborough	221 0 0
T. Sharman, Leicester	214 10 0
W. H. R. Sharman, Leicester	191 8 10
A. Plant, Leicester	188 10 0
T. & H. Herbert, Leicester	188 0 0
J. O. Jewsbury, Leicester	186 10 0
Meikle & Philp, Edinburgh	186 0 0
F. Major, Leicester (accepted)	183 5 0

For hurdle fencing in St. Margaret's Pasture, Leicester, for the Corporation of Leicester. Mr. J. Gordon, M.Inst. C.E., Borough Surveyor:—

Cort & Paul, Leicester	£230 0 0
R. Edlin, Leicester	194 12 6
Wright Bros., Leicester	190 15 6
Vipan & Headley, Leicester	185 8 0
E. C. & J. Keay, Birmingham	179 18 6
Hydes & Wigfull, Sheffield	174 15 6
W. T. Burbidge, Leicester (accepted)	148 11 6

For hurdle fencing along the towing-path from Belgrave Lock to Abbey Park-road, Leicester, for the Corporation of Leicester. Mr. J. Gordon, Borough Surveyor:—

Vipan & Headley, Leicester	£611 19 0
R. Edlin, Leicester	593 15 0
Wright Bros., Leicester	590 12 6
Hydes & Wigfull, Sheffield	567 0 0
E. C. & J. Keay, Birmingham*	542 12 6

* Accepted.

For additional work to stables, and general repairs, at the Blue Yard, Islington, for the London General Omnibus Company, under the superintendence of Mr. G. T. Lanham:—

Bolding	£797 0 0
Jackson & Todd	772 0 0
J. R. Hunt	704 0 0
Garrud	697 0 0
Aldridge & Jenvey	580 0 0
Evans	574 15 0
Stevens Bros.	572 0 0
Richens & Mount	542 0 0
Parker	519 0 0
Dearing & Son	490 0 0
Scharien & Williams (accepted)	487 0 0

Accepted for alterations and repairs to the Barkworth Arms, Barkworth-road, S.E., for Messrs. Smith, Garrett, & Co. Messrs. Hills & Fletcher, architects:—

C. F. Hewlitt	£165 0 0

[No competition.]

For alterations and additions to news office, for the Directors of the Grimsby News Company. Mr. E. W. Farebrother, architect, Grimsby:—

C. Simons, Grimsby	£405 0 0
R. Hollingworth, Grimsby	366 0 0
Willows & Roebuck, Grimsby*	357 0 0

* Accepted.

For the erection of new farmhouse, &c., and engine-shed, for the Trustees of Mr. Alfred Hyman Allenby. Mr. E. W. Farebrother, architect:—

	House.	Engine.
John Milns, Lincoln	£540 0 0	£140 0 0
Frank Parker, Binbrook	505 3 0	188 0 0
H. W. Clark, Louth	500 0 0	185 0 0
C. Mackarill, N. Thoresby	497 7 7	184 0 9
S. Simonson, Grimsby	492 0 0	190 10 0
Riggall & Hewins, Grimsby	473 16 0	152 15 0
Joseph Jessup, Grimsby	399 0 0	158 0 0
G. S. Mashford, Cleethorpes	387 10 0	134 10 0
John Holmes, Wainfleet	425 0 0	145 0 0
Cooper Snowden, Grimsby	384 10 0	125 0 0
Janney & Hill, Fulstow*	383 4 11	136 18 0

* Accepted.

For additions to drapery establishment, Market-place, Great Yarmouth, for Mr. G. B. Palmer. Messrs. Bottle & Olley, architects:—

B. Springall	£1,410 0 0
Rand & Cooper	1,4 8 0 0
I. S. Cooper	1,352 0 0
J. F. Bray (accepted)	1,331 0 0
Gas Fitting.	
Gray & Palmer	38 0 0
Barge & Freeman (accepted)	29 15 0

For the erection of two villa residences at Woburn Sands, Bucks, for Mr. R. Newton. Mr. F. T. Mercer, architect, St. Paul's-square, Bedford. Quantities supplied:—

E. George, Woburn Sands	£1,020 0 0
G. Harrison, Bedford	990 0 0
T. Laught n, Bedf rd	990 0 0
J. Whiting, Woburn Sands	960 0 0

For new roof over the stage and auditorium, at the Surrey Theatre, for Col. Temple Temple West. Mr. Harry Percival, architect, 2, Great George-street, Westminster. Quantities supplied by the architect:—

		Credit old Materials.
J. Gregory, Clapham Junction	£786	—
H. Hammond, Finsbury Park	770	27
Janson & Co., King Henry's-road	678	20
Laing & Co., Duke-street, Strand	660	13

For laying 4 in. cast-iron main and supplying fire appliances at the Surrey Theatre, Blackfriars-road, for Col. Temple Temple West. Mr. Harry Percival, architect. Quantities by the architect:—

Binney & Sons, Victoria-street	£175 0 0
Shand, Mason, & Co., Upper Thames-street	165 0 0
Merryweather & Son, Greenwich	157 1 3

For the erection of engineer's shop, for Messrs. Palmer & Co., oil-refiners, Stratford:—

J. Morter	£207 0 0
Wm. Gregar	173 0 0
J. Abraham (accepted)	165 0 0

Accepted for alterations and repairs to the Globe Tavern, Crutchedfriars, Mark-lane, for Mr. James Keene:—

C. F. Hewlitt	£256 0 0

[No competition.]

New Road, Britannia Park Estate, Hampstead.—In the list of Tenders for this work given in the *Builder* of the 1st inst., Messrs. A. & F. Culverhouse's tender is given as amounting to £3,270. This should have been £2,270.

Special Notice.—Lists of tenders frequently reach us too late for insertion. They should be delivered at our office, 46, Catherine-street, W.C., not later than four p.m. on Thursdays.

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H. S.—C. F. H.—H. H. B.—E. W. C. (if an apprentice, without any special agreement, leaves tools in charge of the master, the latter is by law only bound, as a "depositary," to take the same care of them which a reasonably prudent man takes of his own property. Under the circumstances named in your letter it does not appear that the master would be legally liable).—H. M. M.—M. H. V. —H. S. L.—A. N.—C. L.—J. B.—E. G. B.

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Letters or communications (beyond mere news-items) which have been duplicated for other journals, are NOT DESIRED.

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Asphalte.—The Seyssel and Metallic Lava Asphalte Company (Mr. H. Glenn), Office, 38, Poultry, E.C.—The best and cheapest materials for damp courses, railway arches, warehouse floors, flat roofs, stables, cow-sheds and milk-rooms, granaries, tun-rooms, and terraces. [ADVT.

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